



# Exploring Near and Far



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## NOTE TO TEACHERS

*The following supplementary materials are available for use with this basic text:*

1. TEACHER'S GUIDE
2. DIRECTED ACTIVITIES (*pupils' workbook*) and TEACHER'S EDITION (*with answers*)
3. UNIT TESTS and KEY
4. PROJECT WALL MAP OF THE UNITED STATES



NEW  
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STUDIES



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# Exploring Near and Far

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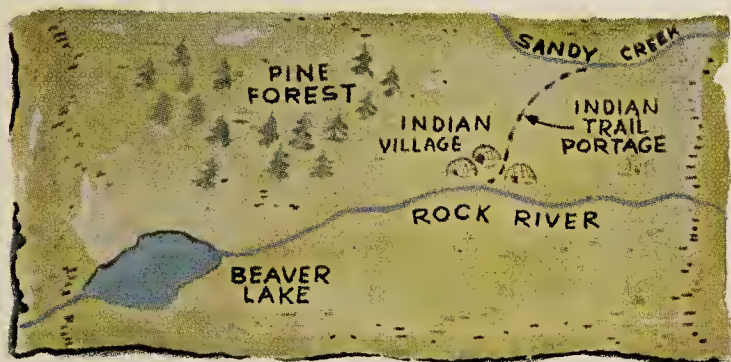
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# Exploring Is Fun



Many years ago, long before you were born, explorers visited this land of ours. They roamed through our forests. They paddled canoes on our rivers and crossed mountains.



These explorers kept records of the interesting things they saw. These records tell about the different trees and animals they found in America. They describe the weather. They tell about the Indians. They are filled with maps that show where rivers, mountains, and Indian trails are located. We study these records to discover what our country was like long ago.

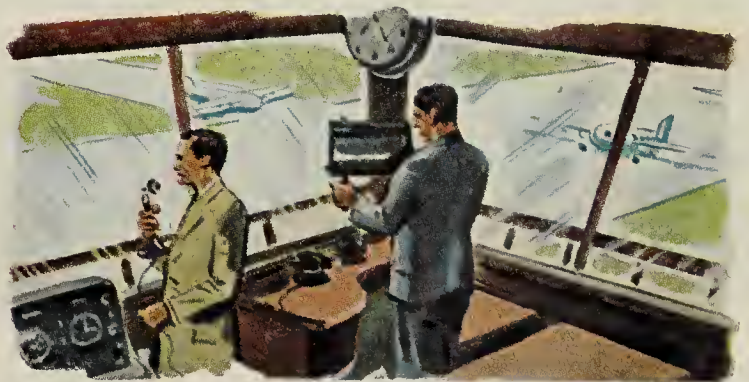
Did you know that men and women are still exploring our country? Every year they go into our mountains, deserts, and forests to find out more about them.

Boys and girls can be explorers, too. Those who live in our town go down to the creek in the spring and explore. They bring back tadpoles and turtles.

In the summer they like to explore the woods near us. They look for animal dens or bird nests, or try to discover secret places among the rocks and trees.

The boys and girls who live in our town sometimes explore in the big city nearby. They go to the parks and museums or visit the airport or great factories. They enjoy exploring in the country also. Here they see farm machines, barns, baby chicks, and cows.

These boys and girls have also found that it is fun to explore their own community. Have you ever done this? Do you think that you could discover something new about your community? Why don't you try?



The material on the next few pages will help you know what to look for. And after you have explored your own community, you will be ready to explore other communities near and far.

THE AUTHORS



# Exploring Your Community



## *What Kind of Community Do You Live In?*

A community is a place where a group of people live together. They share things. They use the same post office and the same library. The mothers often shop at the same stores. The children go to the same schools.

A village and the farms around it form a community. A city is a community.

What kind of community do you live in? Is it a city community? Or do you live in a small town or on a farm? What things do you share with your neighbors?



## *Where Is Your Community Located?*

People live in many places on the earth. Some have their homes where the land is flat. Others live among the hills or mountains. Some live close to rivers or lakes. Others live far from water.

The picture above shows different kinds of land. Find the high mountains, the hills, and the plains. Notice the lake, river, and ocean. What does the land around your community look like?





## What Kind of Climate Do You Have?

The weather bureau keeps a record of the *weather* from day to day and from year to year. From these records they can tell us about the *climate* in the region where we live.

Your class can also keep a record of the weather from day to day. This record should tell whether the day was sunny, cloudy, or rainy. It should also tell the temperature. Look on page 14 to learn how to make a weather chart.

Do you have lots of rain where you live or is it very dry? Explorers can tell

whether a land is wet or dry by looking at the plants. Where there is little rain, few plants will grow. Where there is more rain, grasses will grow. Where there is much rain, many trees will grow.

There is a great difference in the temperature of different regions. Some places are warm all through the year; others are cold. Many places in our country are warm in the summer and cold in the winter.

Which picture tells about the climate in your community?



Warm all year



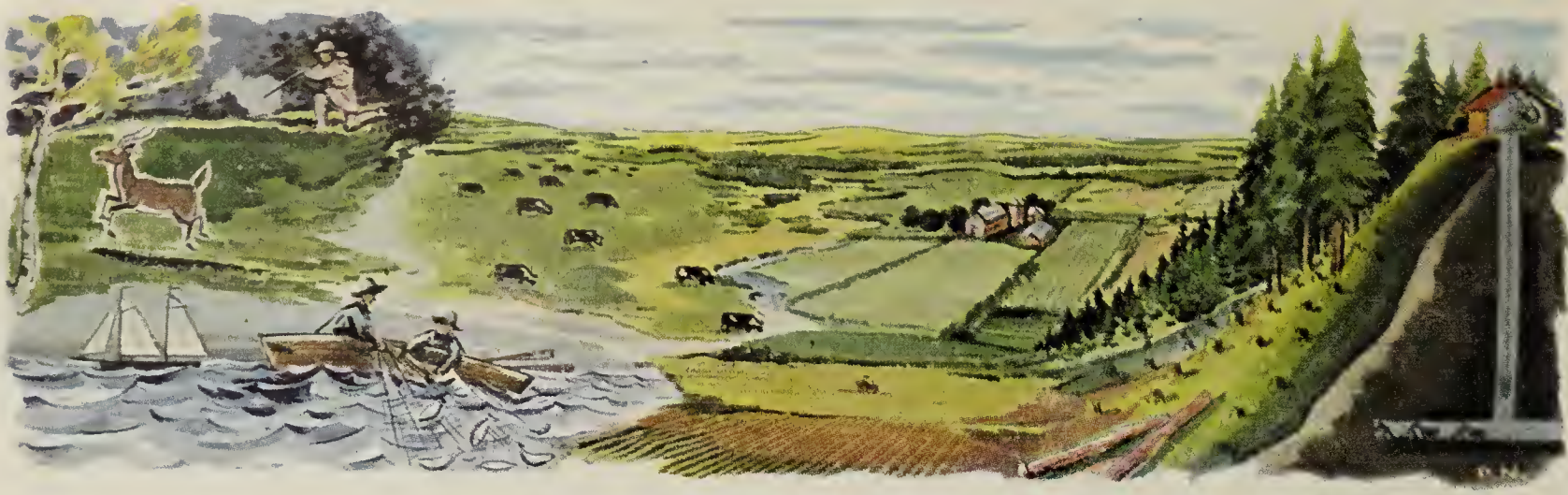
Cold all year

Warm in summer

Cold in winter







## How Do the People of Your Community Make a Living?

You can learn a great deal about your community if you know how the people make a living. Long ago, almost everyone made his living from the land or sea.

Do any people in your community make a living by hunting, fishing, grazing animals, raising crops, mining, or lumbering? Study the picture carefully.



Most of the things we get from the land or the sea cannot be used as they are. We must make them into something useful. Wheat is ground into flour. Logs are made into furniture. Cotton

is made into cloth. Name some things **manufactured** in your community.

Many people make their living by **serving others**. Make a list of all the ways people in your community serve others.







***How Do the People of Your Community  
Take Care of Their Needs?***

People everywhere need homes, food, and clothing. They must have some way to travel and to send messages. They need many kinds of tools and machines. They like to have fun.

People in different parts of the world build different kinds of homes. They build their homes to suit the climate. They often use materials found close by. What kind of home do you live in?



People in different parts of the world wear different kinds of clothing. They eat different foods. Can you decide why this is so?

There are many ways to travel and to send messages. How many of the ways shown in the picture below are used in your community?







## Making a Map of Your Community

Last year a fourth grade class in California and another one in Ohio began to write letters to each other. They sent pictures of the children and drawings of the school.

Then one day the class in California wrote, "We want to know more about your community. Please send us a map."

So the children in Ohio began to explore their town. First they learned about the streets. They tried to discover how their community was arranged.

They found out that the factory and the lumber yard were near the railroad. They saw that the school, hospital, library, and church were near the homes. They learned what the different buildings on Main Street were used for.

Then the children in Ohio drew their map. The illustration at the top of page 9 shows part of it. Compare it with the air picture of their town on this page. Do you think the children made a good map?

Look at the map again. Can you find the schoolhouse? It is shown in red and has a flag on top. The church is a box with a cross on top. The railroad is a long line with many little cross lines. These map pictures are called *symbols*. Many map makers use these symbols.

Maps are not very useful unless they show directions. How do the boys and girls show directions on their map?

One of the best ways to learn more about your community is to make a map.





Would your class like to make a map of part of your community? Start with a large sheet of plain paper. Place the paper on a table or on the floor. Mark NORTH at the top of the paper. Be sure NORTH on the map is toward the north.

Then mark in the other directions. SOUTH is at the bottom of the paper. EAST is at the right side and WEST is at the left.

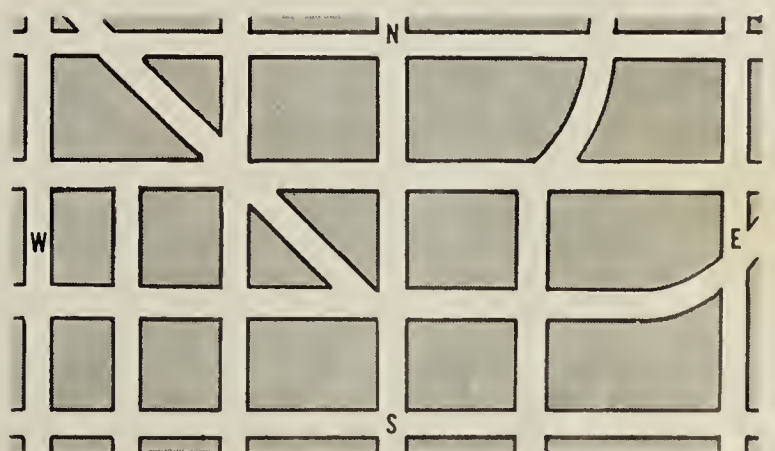
Now draw in the streets. Your map will then look something like the little drawing on this page. Of course, it will be larger and the streets may be arranged differently.

The street names should be added. If a river or a railroad runs through your community, put it on your map.

Start the map of your community by writing in the directions. Then draw the streets.

Next put on such things as schools, churches, factories, stores, and homes. You may use symbols if you wish.

Now color your map. Here are some suggestions. Parks—green. River—blue. City hall, fire department, police department, post office, library, hospital, school, church—red. Factories—yellow. Stores—orange. Homes—brown. Pick your own colors for other things you put on your map.





# Globes and Maps

Explorers must know how to use globes and maps. We are explorers. We, too, must learn how to use them.

Our world is a big round ball. A globe is also a ball. It is a model of our big world. It shows us where things are on the earth. If you have a globe in your classroom, find our country on it.

Most of the maps we shall use in our explorations will be flat maps. They can be printed in books or carried on trips. On a flat map we can see the whole world at one time. How much of the world can you see on a globe at one time?





## Maps Show Land and Water

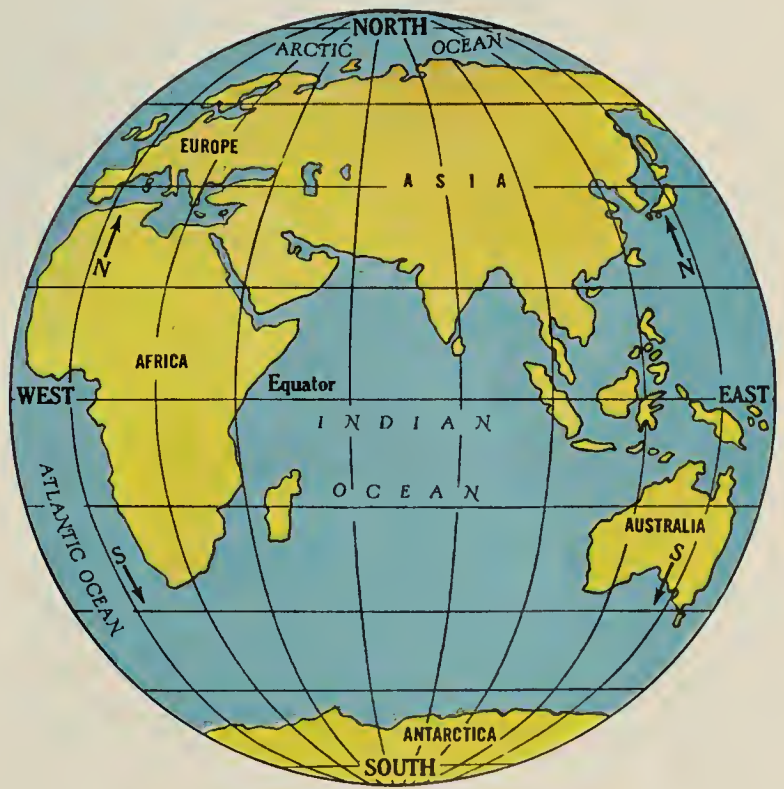
Did you know that most of our world is covered with water? Look at a globe. Can you see which parts of the world are covered with water? Can you tell which parts are land?

On most globes and many maps, the water is colored blue. The largest bodies of water are called *oceans*. Did you know that there are four great oceans? Look at the maps on these two pages and learn their names.



The largest bodies of land are called *continents*. We live on the continent of North America. Find it on a globe. Find it on a map. There are seven continents. What are their names?

Now look closely at your maps. Can you find any *islands*? An island is a body of land surrounded by water. An island is smaller than a continent. There are thousands of islands. Many of them are too small to show on a map.



## Maps Tell Directions

Can you tell directions on a globe or map? It is very easy to learn. On a globe, north is always toward the North Pole. Touch any part of the globe and move your finger toward the North Pole. Your finger is moving north. South is toward the South Pole. Which way is east? Which way is west?

Most flat maps are made just like your community map. North is at the top of the map. South is at the bottom. East is at the right. West is at the left.

Map makers place arrows on maps to tell directions. On most maps north is toward the top. On some it is not. Look for the arrows and you will know.



## ***Maps Show the Location of Rivers and Lakes***

This is a map of our country. It shows the shape of our land. It shows the location of rivers and lakes. What color are they? Is this a good color for water? Where are our largest lakes?

Some of our rivers are hundreds of miles long. Others are short. Some are more than a mile wide. Others are very narrow. Only the largest lakes and rivers can be shown on this small map.



## ***Maps Show the Location of Mountains***

Have you ever seen mountains? We have many mountains in our country. Some are in the east. Others are in the west. This map shows where our moun-

tains are located. Are there more mountains in the east or in the west? Which ones are higher? How do maps in other books show where mountains are located?





## *Maps Show the Location of Cities and States*

Maps of our country often show the location of each state. Find your state on the map on pages 18–19.

Maps of the world often show the location of countries. Find our country on

the world map on pages 20–21.

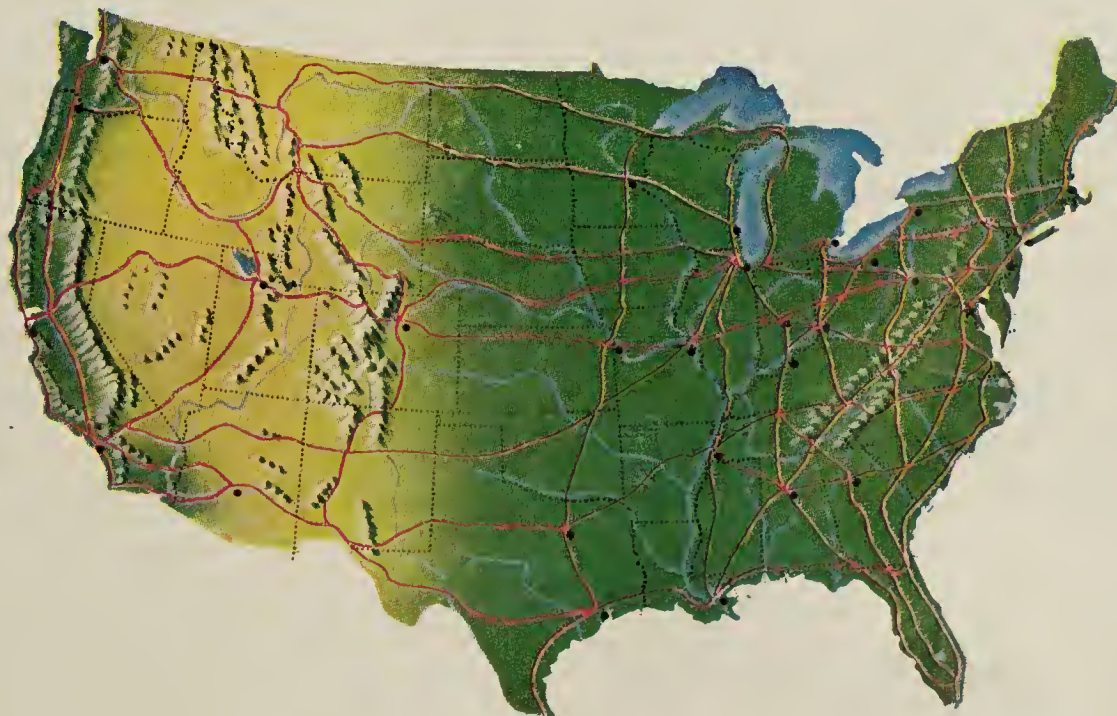
Map makers use a dot to show where a city or town is located. They use a star to show where a capital is located. Find the capital of the United States.



## *Maps Can Show the Location of Many Things*

Have you ever examined a road map? Get one from a service station. Does it use red or some other color to show the highways? Does it show how far it is

from one town to another? Are such things as mountains and national parks shown on your road map? Try to find other things that may be of interest.





## A New Look at Your Community

### CHECKING YOUR SKILLS

A person who does something well is said to be *skillful* in doing that thing. Are you skillful in using maps and globes? Would you like to check your skills? Then try to answer these questions:

1. Why is a globe a good map of the world?
2. Why is a flat map often more useful than a globe?
3. Where is north on a globe? South? East? West?
4. Where is north on most flat maps? South? East? West?
5. How is water shown on a colored map? How many oceans are there? Name them.
6. What is the difference between a continent and an island? Name the seven continents.
7. What is a map symbol? Describe some symbols.
8. What does a dot on a map mean? A star?
9. How do maps show mountains, rivers, lakes, roads?
10. Do the maps in this book show all the rivers or all the lakes in a region?
11. Name the continent, country, and state in which you live.

### LEARNING BY DOING

1. Would you like to make a list of places in your community that would be interesting to explore? You could discuss your list with your teacher and your classmates. You might decide to visit some of these places in a group. Your parents might like to go some places with you, and there will be some places where you can go alone.

2. Most explorers keep a record of what they see. You can keep a record of your explorations by using some of these kinds of records: writing, pictures, maps, drawings, models, and collections. Can you think of any others?

3. It is fun to keep a record of the weather in your community. If you have a big calendar, you can use it. If you don't have one, you can make one at the beginning of each month. Each day you can show whether it is sunny, cloudy, or rainy by using different symbols. You could use a smiling sun for a sunshiny day, a dark cloud for a cloudy day, and an umbrella for a rainy day. Some days would have more than one symbol. Each day write in the temperature. Be sure you read the temperature at the same time each day.

4. You may wish to keep a record of the temperature each morning, noon, and night.

5. Some boys and girls may enjoy making a clay model of the region around their community. The model could show whether it is a plain, a valley, or a region with hills and mountains. Add rivers and lakes. Color it.

6. A group might like to make a large drawing which shows the different kinds of work done by the fathers of all the boys and girls. Or a drawing might be made which shows the most important products of the community.

### BEING A GOOD CITIZEN

A good citizen helps to make his community a better place to live. What are some of the things that the grownups in your community have done to make your community a better place to live?

Here are some things that boys and girls in other communities have done:

They reminded younger children not to pick the flowers in the park.

They picked up trash on the school ground and in the parks.

They made posters warning children not to leave bicycles and toys where people might fall over them.

After heavy rains they made sure that the sewer openings in the streets were not clogged with leaves and branches.

What can *you* do?



A detailed illustration of the Greek hero Atlas. He is a muscular man with a beard and a yellow headband, wearing a blue skirt with a gold belt and yellow sandals. He is holding a large, realistic globe of the Earth on his shoulders with both hands. The globe shows the continents of North and South America in green against a blue ocean. The background is a solid yellow color.

# An Atlas for Boys and Girls

Long ago, in the faraway land of Greece, mothers and fathers often told their children stories. One of the stories that the children enjoyed was about a Greek hero named Atlas. He was very strong. According to the story, he was so strong that he could hold the world on his shoulders.

Today the word *atlas* has come to mean a collection of maps of the world. This part of your book is an atlas. You will use it often as you read the stories.



# Western Hemisphere



The word "hemisphere" means half a sphere. So a hemisphere is half of a sphere. Our country is in the Western Hemisphere.

## Flying Around the World





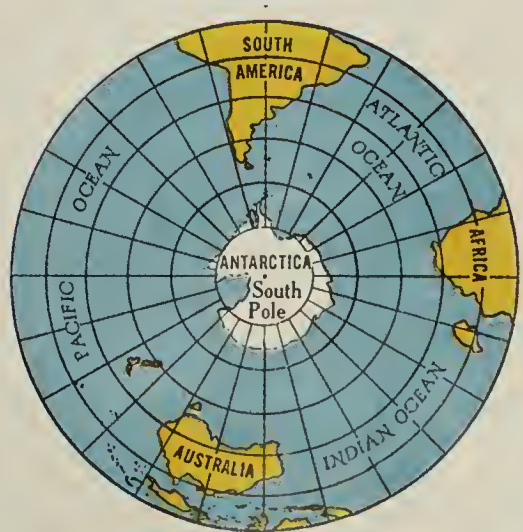
# Eastern Hemisphere



Northern Hemisphere



Southern Hemisphere





# Exploring Communities



A FOREST COMMUNITY  
where Billy and Susan live



PACIFIC  
OCEAN



A GRAZING COMMUNITY  
where Joe Manygoats lives



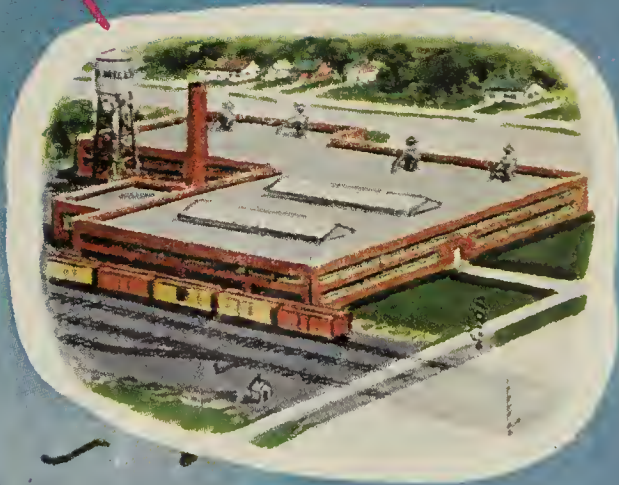
A FARMING COMMUNITY



# in Our Country



A FISHING COMMUNITY  
where Chris lives



A MANUFACTURING COMMUNITY  
where Jane Ellen lives



A TRADING COMMUNITY



# Exploring Communities



A FOREST COMMUNITY  
where Pimwe lives



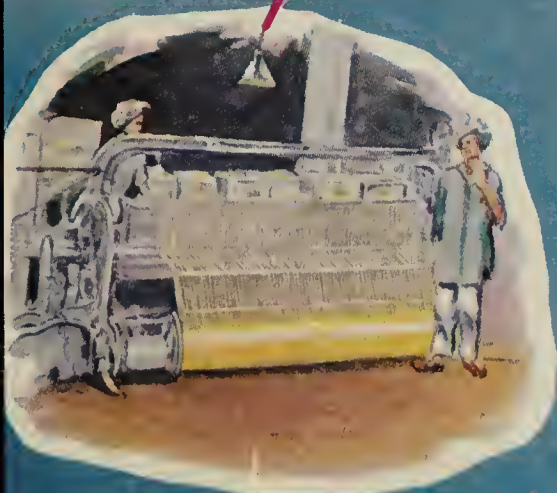
A FISHING COMMUNITY  
where Torgar lives



A GRAZING COMMUNITY  
where Ali lives



# Around The World



**A MANUFACTURING COMMUNITY**  
where Rama and Sita live



**A TRADING COMMUNITY**  
where Fujla lives



**A FARMING COMMUNITY**  
where Hama lives





## A Little Dictionary of Geographical Words

**Antarctic.** The cold region around the South Pole.

**Arctic.** The cold region around the North Pole. Also an ocean.

**bay.** Part of a body of water which reaches into the land.

**canyon.** A deep, narrow valley with steep sides.

**channel.** A deep, narrow body of water connecting two larger bodies of water; the deeper part of a waterway.

**cliff.** A high steep wall of rock.

**climate.** The kind of weather a place has through the years.

**coast.** The land near the sea.

**continents.** The largest bodies of land on the earth.

**desert.** A land too dry or too cold to grow many plants.

**equator.** An imaginary line around the earth that is the same distance from the North and South Poles.

**gulf.** Part of a body of water which reaches into the land.

**harbor.** A sheltered place where ships may anchor safely.

**highland.** Hills, mountains, or plateaus.

**hill.** A raised and more or less rounded part of the earth's surface; smaller than a mountain.

**inland.** Away from the sea-shore.

**island.** Land entirely surrounded by water; smaller than a continent.

**lake.** An inland body of water.

**lowland.** Low and usually level land.

**mountain.** High, rocky land, usually with steep sides and a pointed or rounded top; higher than a hill.

**mouth (of a river).** The place where the river flows into a larger body of water.

**North Pole.** The point on the earth that is farthest north.

**oceans.** The largest bodies of water on the earth.

**plain.** A region which is mostly level, low land.

**plateau.** A region which is mostly flat, high land.

**prairie.** A large area of level grassland.

**reservoir.** A lake where water is stored for future use; sometimes formed by placing a dam across a river.

**river.** A large stream of water which flows through the land.

**sea.** A large body of water partly or completely enclosed by land.

**seashore.** The place where the ocean meets the land.

**season.** A part of a year in which the weather conditions are somewhat alike. Spring, summer, autumn, and winter are seasons.

**South Pole.** The point on the earth which is farthest south.

**swamp.** Land soaked with water.

**tide.** The regular rising and falling of the water of the ocean.

**valley.** Low land between hills or mountains.

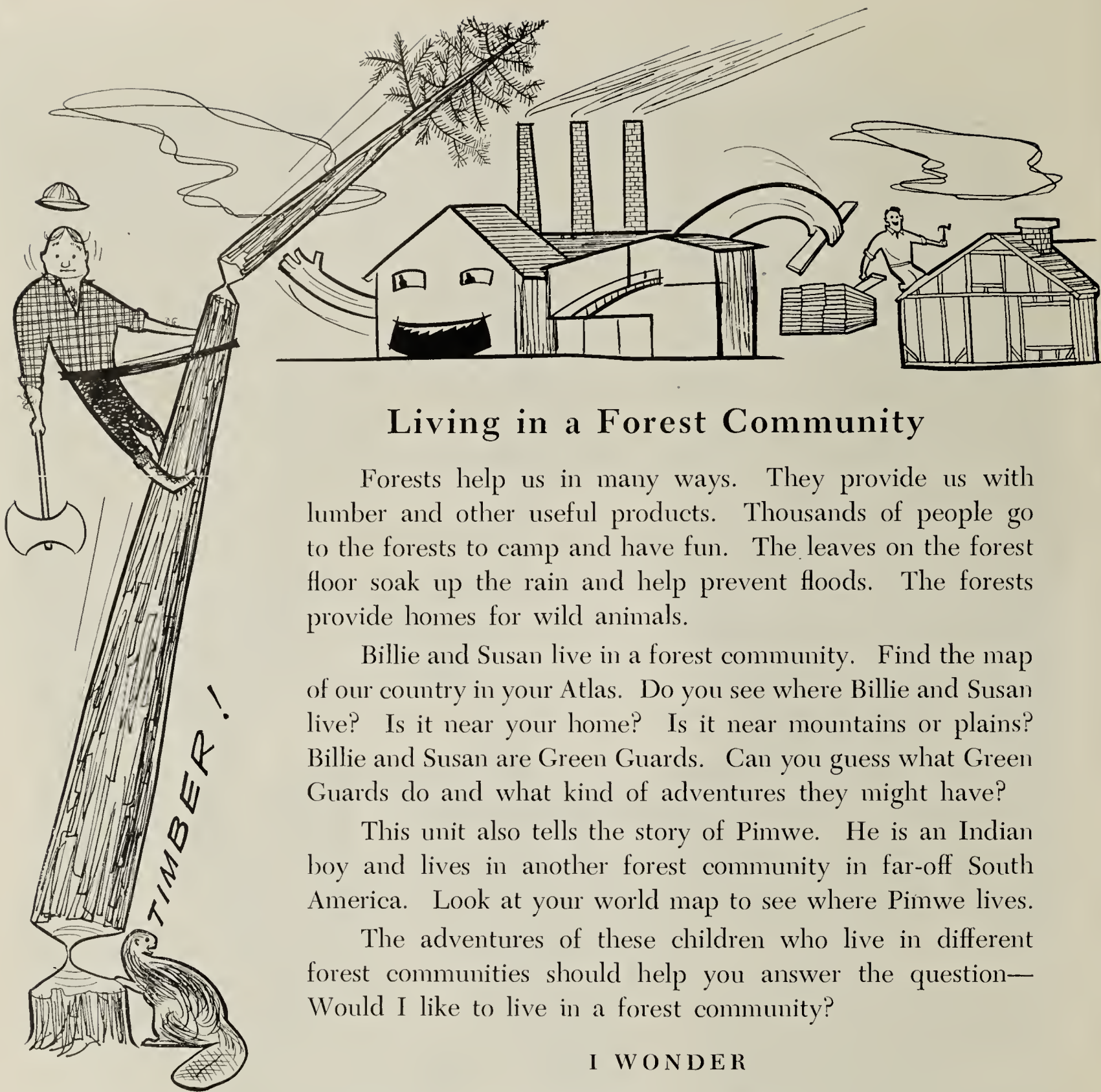




# The Green Guards Save the Forest

UNIT 1





## Living in a Forest Community

Forests help us in many ways. They provide us with lumber and other useful products. Thousands of people go to the forests to camp and have fun. The leaves on the forest floor soak up the rain and help prevent floods. The forests provide homes for wild animals.

Billie and Susan live in a forest community. Find the map of our country in your Atlas. Do you see where Billie and Susan live? Is it near your home? Is it near mountains or plains? Billie and Susan are Green Guards. Can you guess what Green Guards do and what kind of adventures they might have?

This unit also tells the story of Pimwe. He is an Indian boy and lives in another forest community in far-off South America. Look at your world map to see where Pimwe lives.

The adventures of these children who live in different forest communities should help you answer the question—Would I like to live in a forest community?

### I WONDER

I wonder if I would enjoy camping in a forest.

I wonder why there are so many large forests in the northwest part of our country.

I wonder what products of the forest are used in my community.

I wonder what the life of a forest ranger is like.

I wonder if there are different kinds of forests.

### WORDS WE NEED TO KNOW

<i>clearing</i>	<i>forest products</i>	<i>maloka</i>	<i>plywood</i>
<i>equator</i>	<i>forest ranger</i>	<i>mills</i>	<i>rain forest</i>
<i>evergreen</i>	<i>loggers</i>	<i>needles</i>	<i>smokespotter</i>
<i>forest</i>	<i>lumber</i>	<i>Northwest rain forest</i>	<i>watershed</i>







Billie and Susan proudly show their new Green Guard badges to their friend the forest ranger.

## The Twins Join the Green Guards

The September sun was shining brightly as Billie ran across the school grounds. "Hi! Sue! Wait for me," he called to his twin sister. She was walking ahead of him on her way home from school.

Susan turned around. "Whatever happened to you, Billie Layton? I waited and waited."

Billie and Susan were twins but they didn't look alike. Billie had light hair, cut very short. Susan's hair hung in a long dark bob. She was taller than her brother. Like most twins they were very fond of each other. They always played and worked together.

"I stayed for a meeting," Billie answered. "I joined a new club called the Green Guards. Why weren't you there?"

"I thought it was only for boys."

"It's for both boys and girls," Billie said. "I wrote your name down next to mine, so you belong, too. Here is your badge. There are already two squads of Green Guards who go to high school. But this is a new squad for grade school pupils."

He was going to tell her more about it when a car stopped beside them.

### The Twins Meet an Old Friend

A young man got out of the car. He was Dick Pitman, the United States *forest ranger*. Dick was an old friend of the twins. Susan thought he looked nice in his green uniform. When he smiled, his teeth seemed very white against his sunburned skin.

"Hello, there, twins," he said. "What are you looking so happy about?"





Needles and cones of a Douglas fir.

"Sue and I have joined the Green Guards," Billie said proudly. "I guess you know what *they* are."

Dick nodded. "I certainly do," he replied. "The Green Guards are a big help to us forest rangers. They help us prevent forest fires. They teach people to be careful with campfires, matches, and cigarettes. I'm glad that you and Susan have joined. You can help me keep our forest green."

The twins grinned at each other. It was going to be fun, helping their friend the forest ranger.

"By the way," Dick continued, "I'm going up into the woods where your father is working. How would you like to come along? You can ride back with him when he is through work."

"You mean where Dad is cutting the big trees?" Billie asked in surprise. Many times he had wanted to go to work with his father. But the answer had always been, "No, the woods are too dangerous for children when the *loggers* are working."

"I think it will be all right if a forest ranger takes you," Dick said.

Susan jumped up and down with excitement. "Will you drive past our house, so that we can ask Mother?"

"Of course," said Dick. "Hop in."

Mrs. Layton was glad to let them go with Dick. Everyone liked and trusted the fine young ranger.

### Into the Great Forest

In a short time they were out of town and following a small river up the valley. The river sang a merry tune as it tumbled over the rocks. Along its banks the alder and vine maple trees were turning gold and red.

The road twisted and turned as it climbed up into the mountains. The twins slid back and forth on the seat as Dick drove around the curves. He drove carefully, but the curves were very sharp.

"Hang on," he said, "we'll soon be there."

Before long they were in the great forest. Here the trees were different from those along the river in the valley. They were very tall and straight. They had no limbs except at the top. The dark green tops were so high in the sky that the twins had to stretch their necks to see them.

Billie and Susan knew that some of the biggest trees in the world grew in their forest. They knew that these giant trees were called *evergreens* because they stayed green all year. They did not shed their leaves in winter, like other trees. Their leaves were very narrow and were called *needles*.

There are many kinds of evergreen trees in the forest. The one that the twins liked best is called a *Douglas fir*. It is the state tree of Oregon, where Billie and Susan live.



A mild climate and lots of rain make the trees in this forest grow big and close together. This forest is called the *Northwest rain forest*.

### DO YOU KNOW?

1. How do the Green Guards help forest rangers?
2. How are the trees in the forest different from those in the valley?
3. Which tree do Billie and Susan like best? Why? Which kind do you like?
4. In what ways are evergreen trees different from other trees?
5. Why do trees grow so big in the Northwest rain forest?

### LEARNING BY DOING

1. There are squads of Green Guards in many states. They belong to a large group called "Keep America Green." Try to find out whether there is such a group in your state.

2. Make a list of ways that you can help to keep your community green. Plan ways to do some of these things.

### BEING A GOOD CITIZEN

A good citizen helps to prevent fires. What can you do to keep fires from starting?

## A Giant Tree Falls

Dick Pitman drove off the road into an open place in the forest. Here the trees had been cut down; only the stumps were left.

As they stepped out of the car, there was a terrible noise. *Crash! Boom! Roar!*

Susan jumped. "What's that?" she cried.

"Don't be scared," said Dick. "It's always noisy where the loggers are working. You can't see them from here.

In the great forest the road winds in and out, close to the giant trees.







The "high climber" has one of the most dangerous jobs in the woods. He climbs up to cut off the top of the spar tree. Spurs on his shoes and the rope around the tree keep him from slipping. The metal helmet protects his head from falling branches.

They are below the little hill ahead of us. But you can see the top of their *spar tree*."

"You mean that thing that looks like the mast of a ship?" Billie asked.

"Yes, that's the spar," Dick replied.

"But what *is* a spar tree?" Susan wanted to know.

### The Spar Tree

As they walked up the hill, Dick answered her. "The spar is a living tree, although it doesn't look much like one. When loggers go into the woods to work, they choose a tree to be the spar.

"Then a logger climbs the tree and cuts off all the limbs and part of the top. He fastens machinery and heavy wire ropes, called *cables*, to the top of the spar. These cables haul the logs out of the woods and stack them in a huge pile."

Billie shouted above the noise. "What are those things at the top, that the cable is running through?"

"Those are the pieces of machinery I mentioned," said the ranger. "They are called *pulley blocks*."

"Oh, I know what a pulley is," said Susan. "There's one at the top of the flagpole at school."

"That's right," Dick said. "The pulley blocks on the spar tree work much the same way. But instead of helping to pull a flag to the top of a pole, this pulley helps to haul in a log from the woods. Sometimes the log is a half mile away, and it may weigh more than ten automobiles. So it can't be pulled in by hand, as you would raise the flag. There are engines to do that work."



This is the base of the spar tree. Cables strung from the top are hauling in another log. The machine beside the tree is loading logs onto a truck.

Just then they reached the top of the hill and looked down. At the bottom of the spar they saw a huge pile of logs. Nearby were two powerful engines and a big logging truck.

Noises seemed to be coming from everywhere. Engines chugged and roared. Cables screamed as they whizzed through the pulley blocks.

"Look out!" Susan cried, jumping behind a stump. She had seen two big hooks, like giant ice-tongs, moving swiftly through the air.

"They can't reach us here, Susan," Dick shouted. "They're fastened to one of the cables. We're safe as long as we stay here."

Below them they could see the busy loggers. The men all wore shiny metal hats and dark work clothes. Their heavy boots had sharp steel spikes on the soles. The spikes kept them from slipping as they walked on the logs or jumped from one place to another in the thick underbrush.

"I see Daddy over there," Susan said. "What's he doing?"

**"T-I-M-B-E-R!"**

Mr. Layton was standing by a Douglas fir so big that three men, holding hands, could not have reached around it. He and another logger held a big power saw against the rough brown

First the loggers cut a big notch on one side of the tree. Then with their power saw they cut through the trunk from the other side.



trunk. The saw burst into a loud buzzing. The men's arms jerked as the heavy saw ate into the tree.

The twins could hear other saws at work, too. It sounded as if the whole forest was full of giant bumblebees.

Suddenly Mr. Layton's saw stopped. He shouted, "T-I-M-B-E-R!"

That was the warning cry in the woods. It meant that the tree was about to fall and everyone should get out of the way.

The twins saw the great tree quiver. Then they saw the green top start to move across the blue sky. At first it





moved very slowly. Then there was a sharp cracking sound as the tree broke away from the stump. Now the top moved faster and faster.

They heard the *whhhshsh* of the great limbs speeding through the air. They heard the snapping of branches as the giant fir crashed into smaller trees in its path. Then there was an earth-shaking *B-O-O-M* as it hit the ground.

Billie's eyes were big and round. "Did you feel that, Sue?" he asked. They were standing far away from the tree but they had felt the ground shake.

### Moving a Big Log

"What happens now?" Susan asked.

"Tomorrow a logger will cut off the branches," Dick said. "Then another logger will take a power saw and cut the tree trunk into logs." He pointed. "If you look over that way, you'll see what happens to the logs after they are cut."

They looked at the logs that Dick had

pointed to. Then they heard the cable singing through the pulley block. The giant ice-tongs that had frightened Susan went speeding through the air. When they stopped, a logger hooked them into one of the logs.

"Can they really move it?" Billie wondered. It seemed impossible. Then a whistle blew and an engine began to roar. The cable tightened and groaned. The top of the spar tree quivered.

Then the impossible happened. The log started to move. The cable lifted the front end into the air, and the back end came crashing along the ground. It banged into stumps, plowed through the brush, and dug a deep ditch in the earth. Then the log was pulled high into the air and placed, light as a feather, on the big pile of other logs.

"Wow!" Billie gasped. "That was really something!"

Another whistle blew. The engines stopped, and the woods became very

With a sharp crack the tree breaks away from the stump. The notch on the other side guides the direction in which the tree will fall.







In the Douglas fir forests, logging is done in big "blocks." The brown patches in this picture show where all the trees have been cut. The wind will carry seeds from the other trees to replant these bare places. Loggers use the forests wisely when they plan ahead for a new crop of trees.

quiet. It was time to quit work now.

Mr. Layton came to meet them, carrying a bright-colored jacket and his lunch bucket.

"Well, this is a surprise," he said. He gave Susan a big hug and mussed Billie's hair. "I'm glad you got to see a big tree cut down, as long as Dick was here to take care of you."

Billie's eyes were still big and round. "Oh, Dad!" he exclaimed. "I didn't know you did exciting things like that! When I grow up, I'm going to be a logger, just like you."

"So am I," Susan nodded.

Mr. Layton laughed. He had never heard of a woman logger. He thought Susan would look funny in a metal hat and spiked shoes.

### DO YOU KNOW?

1. What is a spar tree? How is it used?
2. How are logs moved by pulleys and cables?
3. How do the loggers in this forest dress? Why do they dress as they do?
4. What does the cry T-I-M-B-E-R! mean when it is heard in a forest?
5. What happens to big trees that are cut?

### LEARNING BY DOING

1. Some of the books listed at the end of this unit tell about life in a lumber camp and work in a forest. Others tell about the trees and animals of the forest. Perhaps you can read some of them and tell your teacher and classmates about them.

2. Can you make some interesting posters that tell about ways of preventing fires?

### BEING A GOOD CITIZEN

Do you think Dick Pitman is a good citizen? Why? What have you done for younger children?





Would you like to live where there are mountains and rivers and forests? Billie and Susan do. Most of the things you see in this picture have something to do with trees. Why is there a lookout tower on Baldy Mountain? Why is there a forest nursery? What kind of mill is next to Evergreen City?

## Living in Evergreen City

The small town in Oregon where the Laytons lived was named after the forest. It was called Evergreen City. The town was in a valley near the Cascade Mountains. About 2,000 people lived there. Most of the men worked in the forest. Some worked in the *sawmill* at the edge of town. Evergreen City had only one main street of stores and shops. But it had many streets of homes.

Susan thought that the street she lived on was the prettiest one in town. Most of the houses along the street were made of wood and painted white. The wide lawns were green, and bright flowers were everywhere. Nearly every yard had roses in bloom.

When Mr. Layton and the twins got home, it was almost dinnertime.

"Hurrah! Hurrah!" shouted Billie. "We're going to eat outdoors. Mom is setting the table in the back yard."

"I'm starved," Susan said.

"So am I," said Mr. Layton. "Working in the woods may be hard and dirty, but it gives me a good appetite."

He sat on the back steps to take off his boots. He didn't want the sharp spikes to cut holes in the kitchen floor. Then he went inside to take a bath and dress for dinner.

In one corner of the Laytons' back yard there was a fireplace made of bricks. Nearby was a wooden table,



with benches to sit on. The table was under a big evergreen tree called a *red cedar*. All around the yard were flower beds filled with many-colored blooms. The lawn had a thick carpet of grass.

The twins helped their mother prepare the dinner. The vegetables were cooked on the electric range in the kitchen. But the steaks would be broiled over hot coals in the outdoor fireplace.

They were having venison steaks, which came from a deer. Mr. Layton had shot the deer last winter not far from Evergreen City. They had kept the meat in the freezer.

They were also having huckleberry pie made from berries that Mrs. Layton had canned. The twins had picked the wild berries in the woods.

### What the Rain Does

"This is probably the last time we can eat outdoors this year," said Mrs. Layton, as she put the venison steaks on to broil. "The evenings are getting too cool. And any time now, the fall rains will start."

"That's the only thing I don't like about the rain," Billie said. He was chopping wood for the fireplace. "We can't eat outdoors when it rains. But I don't mind playing in the rain."

Susan was putting the salad bowl on the table. "I like the rain," she said. "It makes everything so pretty and green."

Just then a man came around the house. "Hi, Grandad," Billie called. The twins ran to meet him.

"Am I invited to dinner?" he asked.

"You certainly are," Mrs. Layton answered. "We're having your favorite meat—venison steak."

Grandad sat on a bench to talk to Billie and Susan. "I heard you talking about the rain as I came in the yard," he said. "You didn't mention the most important thing that rain does for us in the Northwest. Rain makes jobs for more than half the people who live in this part of the United States. They all have work because rain makes our forest grow.

"Many men work in the forest. A great many more work in *mills*. The things made in the mills—*forest products*, we call them—give work to thousands more. Men are needed to ship the products. Men are needed to sell them. Still more are needed to build houses and bridges and railroads. All over the world, men have jobs because the rain makes our great forest grow."

This is the street that Billie and Susan live on in Evergreen City. Every yard has flowers and big shade trees. Do you see the same kind of trees on the street where you live?





## Singing in the Firelight

"Dinner's ready," called Mrs. Layton.

Everyone sat down to eat the meal that she and the twins had prepared.

After dinner Billie put more wood on the fire. How the flames blazed and crackled! The family sat under the cedar tree in the firelight and watched the stars come out. They listened to the call of the crickets in the grass.

The neighbors from next door came over to visit. They brought some apples and walnuts that had grown on the trees in their yard.

Susan started to sing, and everyone joined in. They sang old songs that people sing nearly everywhere in the United States. They sang "Down by the Old Mill Stream," "Just a Song at Twilight," and "Home on the Range."

The neighbor said, "'Home on the Range' is a cowboy song. Isn't there such a thing as a loggers' song?"

Grandad and the twins are glad that they are going to eat outdoors. Everything seems to taste better in the fresh air.

"There never has been in the Northwest," answered Grandad. "But many years ago the loggers in the East had their own songs. That was before there were any loggers out here. Only the Indians were cutting trees in the Northwest rain forest then."

## DO YOU KNOW?

1. Where do most of the men in Evergreen City work? Why? What do they do?

2. What do you like best about the town? About the Laytons' home?

3. How does rain make jobs for the people of the Northwest? What kinds of jobs?

## LEARNING BY DOING

1. Look for the Cascade Mountains on the map of the United States in your Atlas.

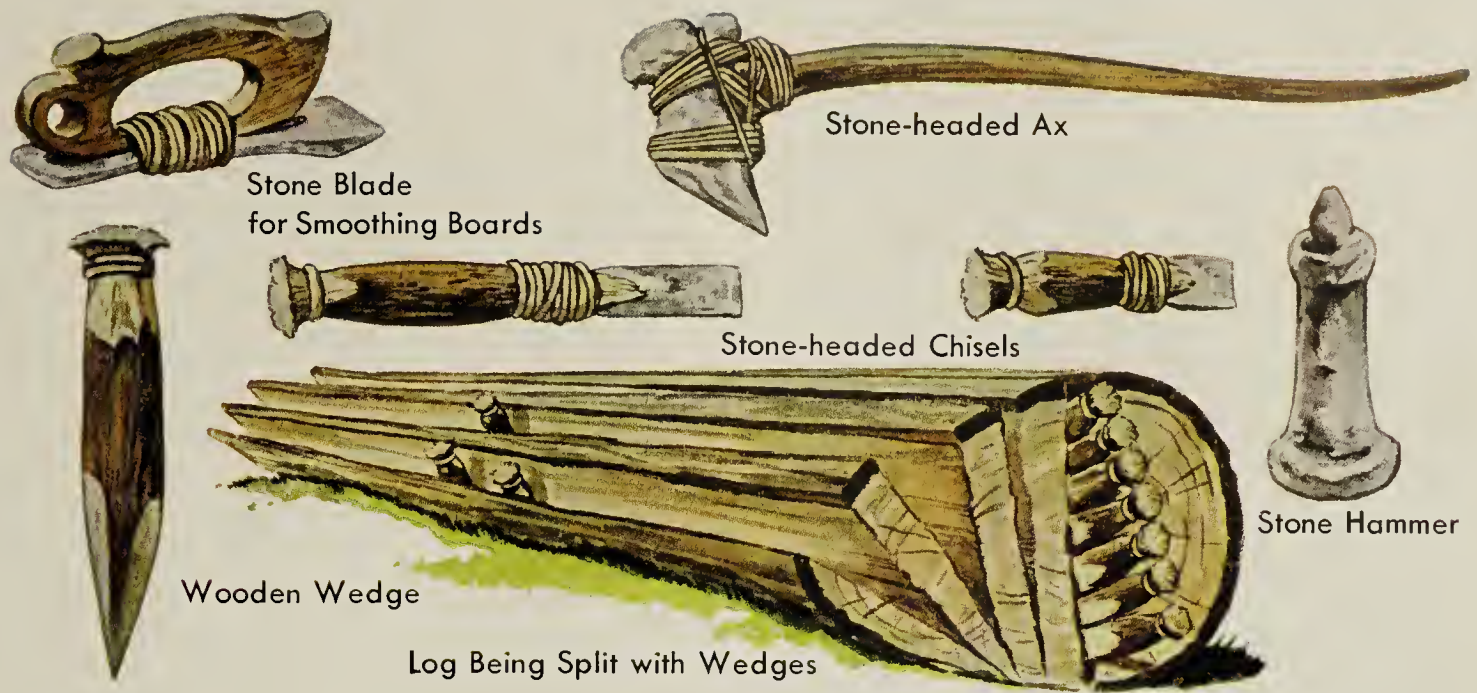
2. Try to write a song for these loggers who have no song of their own. Perhaps you and your classmates can sing it.

## BEING A GOOD CITIZEN

Good citizens are willing to help their neighbors. What can you do for your neighbors?







Even with crude stone tools, the Indians of the Northwest forest could cut down big trees. To make boards, they split the logs by pounding in a row of wooden wedges.

## Early Days in the Forest

“How could the Indians cut down trees?” asked Billie. “They didn’t have saws like Dad’s, did they?”

“They chopped them down with axes made of stone,” Grandad said.

“But why did they go to all that bother?” Susan asked. “We burn sticks and limbs in our campfires. We don’t need to cut down a whole tree.”

“They used the trees for many things besides campfires,” said Grandad. “For the Indians, the most important tree was the red cedar. That is the kind of tree we are sitting under right now. They used the shaggy bark to make clothing and fish nets. They built their lodges, or homes, of boards split from cedar logs; and they covered the dirt floors with mats made of cedar bark.

“The Indians along the Columbia River made cedar logs into canoes. The inside of the log was burned out, and the outside was shaped with their stone

axes. Some of their war canoes were big enough for fifty warriors.

“Yes, the forest gave the Indians many things they needed. They made good use of the forest, but sometimes they destroyed part of it. They didn’t think it was wrong to burn the trees. They wanted to make open places where grass and berries would grow. Then they could kill the deer and bears and other animals that came there to feed.”

### How the Pioneers Used the Forest

“Then the early pioneers came to the Northwest,” Grandad went on. “To make farms, they cut down the trees and cleared the land of stumps. Many times they burned parts of the forest, because that was easier than cutting the big trees.

“Of course they used some of the trees. They needed wood for fuel and to build houses and barns. But mostly they thought the forest was a nuisance.”





Here are two old-time lumberjacks. One is carrying a two-man handsaw and a bottle of kerosene for oiling it. The other man is holding a long wooden wedge. Their sharp steel axes were much better than the Indians' stone axes.

### Loggers Come to the Northwest

"After the pioneers," Grandad continued, "came the loggers. They had already cut the forest in other parts of the United States. Now they wanted to cut the trees in the Northwest rain forest. People everywhere were asking for more *lumber*. This was a good place to get it.

"When the loggers saw how big our trees were, they could hardly believe their eyes. 'There's enough lumber in this forest to last forever,' they said. They began to cut all the trees, but they used only the best ones.

"After a few years, even the loggers began to realize that someday every tree would be gone. No forest can last forever unless men use it wisely.

"Finally our government and a few wise timber companies decided to do something to save the forests. The government made some of the land into national forests, where no trees could be cut without permission. The timber companies agreed to cut only the trees they needed. They promised not to waste them by letting them rot on the ground. They also promised to leave a few of the best trees, wherever they were logging, so that there would be seed to grow new forests. Now we can really have forests that will last forever, because the government and the people are working together to protect them."

### When Grandad Was a Lumberjack

"I remember what logging was like out here in those early days," Grandad told them. "I started working in the woods when I wasn't much older than Billie. My first job was as cook's helper. Later, I became a *lumberjack*. That's what loggers used to be called.

"We didn't have heavy machinery or power saws to do most of the hard work. We had only steel axes and handsaws. It took us hours to saw through a big tree. Today, a power saw can do the same job in a few minutes. But we were better off than the Indians, who had only their stone axes.

"We didn't have good roads into the forest, or trucks to carry the logs out of the woods. We had to build a railroad into the part of the forest where we



were working. Horses and oxen dragged the logs to the railroad. Then when one part of the forest had been cut and hauled away, we moved the railroad—and everything else—to a new place.

“The logging camps were far back in the forest. We lived there most of the year. Sometimes the snow in the mountains was too deep to work in, and sometimes the mud was so bad that the horses and oxen got stuck. Then we’d have a few days off from work. The only real holidays we had were Christmas and the Fourth of July. We were always glad to get away from camp and visit the nearest town.

“You can’t imagine what those camps were like. The shacks were made of rough boards. Twenty or more lumberjacks lived in a one-room shack. The beds were wooden bunks built along the walls. There were three layers of bunks, one above the other. That is why the shacks came to be called *bunkhouses*.

“The bunks didn’t have sheets or pillows, and there were never any window curtains, rugs, or soft chairs in a bunk-

house. A woman would not have liked such a bare room. But no woman had to live in it. A logging camp was a man’s world. Even the cooks were men.

“The bunkhouse didn’t have much furniture—long benches, a table, and a stove. There were always many heavy woolen socks and shirts and jackets drying on lines hung near the stove.

“We had no comforts at all, not even a bathtub. I’m afraid we weren’t very clean. You can’t keep your face and hands clean with only ice-cold water to wash in.

“But we were too tired at night to care. After working fourteen hours a day, we thought of nothing but eating and sleeping.”

### How Loggers Live Today

While Grandad had been talking, the fire had almost gone out. Now Billie jumped up to put on some more wood.

Mr. Layton said, “Well, I’m glad that times have changed. Nowadays we loggers have nice homes in town and can live like other workers. We drive cars to work every morning and come home

In olden days in the Northwest forest, logs were hauled out on a skid road. Lumberjacks cut down small trees, trimmed off the branches, and half buried the trunks in the soft dirt. Then big logs could be pulled over the “skids” without getting stuck in the mud.





every evening to be with our families. We have television and radios and plenty of hot water for our bathtubs."

Everyone laughed. "Speaking of baths," said Mrs. Layton, "you children had better hurry and take yours. It's way past your bedtime."

#### DO YOU KNOW?

1. How did the early Indians use the red cedar? What tools did they have to work with?

2. How did the Indians and pioneers use the forests? Why did they need to get rid of the trees?

3. Why did the early loggers go to the Northwest? What mistake did they make there?

4. How did our government and wise lumber companies try to save the forests?

5. How has logging changed since the early days? What was life in a lumber camp like?

#### LEARNING BY DOING

Perhaps you and your classmates can make a scene in a box that shows a forest. You can make loggers of clay and show them at work.

#### BEING A GOOD CITIZEN

Good citizens are not wasteful. They try to find a use for everything. How do you use school supplies? Do you use scraps?

## The Twins Visit Some Big Mills

On the way to school the next morning, Susan asked Billie, "What happens to those big logs we saw in the woods yesterday?"

"Trucks take them to a sawmill," he answered. "Then they're made into lumber."

"Do they *all* go to a sawmill? Isn't paper made out of logs, too? How do they make a great big log into paper?"

"I don't know," Billie answered. "Why don't you ask Dad?"

"I'd rather see it happen," said Susan. "Do you suppose our class could visit a mill? We took a trip to the cannery to see how fruits and vegetables were canned. Maybe we could see how lumber and paper are made. I'll ask our teacher, Miss Hall."

#### Planning the Trip

Miss Hall and the class thought that Susan's idea to visit a mill was a good one. "If we are going to visit a mill," said Miss Hall, "how should we get

ready? What plans should we make?"

Many hands waved eagerly. Everyone had a question or a suggestion.

John said, "Maybe we could visit the sawmill here in Evergreen City. My father works there. They make lumber at that mill."

"Could we go to a mill where paper is made?" asked Susan.

"Suppose we make a list of these questions on the blackboard," Miss Hall suggested. "Then it will be easier to find answers to them."

"Dick Pitman, the forest ranger, might know if there's a paper mill near here," said Billie. "He knows all about the forest. He must know about mills, too."

"Yes, he should be able to help us," the teacher agreed.

"I could telephone my father now and ask if we may visit his mill," said John.

"I'll call the ranger," Billie said.

Miss Hall nodded. "Why don't you two boys go to the office and ask the principal if you may use the telephone?"



While the boys were gone, the class thought of other questions. These were added to the list on the blackboard.

When John came back, he looked unhappy. "Dad says that there are no guides to take visitors through his mill. And there are no railings to keep us away from the machinery. Someone might get hurt, he says."

Just then Billie came back, grinning from ear to ear. "The ranger says he knows of a big mill we can visit. It is really a lot of mills in one place. They have guides to take visitors through the mills every day. But it's a long way off. It would take all day to drive there, see the mills, and drive back."

"What kind of mills would we see?" Miss Hall asked.

"A sawmill and a mill that makes paper. The ranger called it a *pulp mill*," answered Billie. "And there are mills that make useful things out of sawdust and bark and scraps. That's what I'd like to see. Most mills burn that stuff to get rid of it. Oh, yes, he said there is a *plywood* plant there, too."

"Does anyone know what plywood is?" asked Miss Hall.

"It's a special kind of board that's used to make cupboards and doors," one child said.

"The walls in our house are made of plywood," said another.

"Do we know enough now to plan our visit to the mills?" Miss Hall asked.

"First, we should find out whether our parents will let us go," said John. "Then we'll have to find a way to get there. Maybe it will cost too much, and we won't be able to go."

"I think we should find books in the library about lumber and paper and plywood," Susan said. "Then we can make a list of questions to ask the guide."

### Dick Pitman Helps Out

For several days the children were busy planning and studying for their trip. They read books and asked questions. They learned many things about the forest and its products. Billie and Susan told the rest of the class how the trees were cut down and made into logs.

Everyone was eager to visit the mills, especially the Green Guards. They were most interested in trees and what happened to them. But they couldn't find enough parents with automobiles who could take the class on the trip.

Finally, the class appointed a committee to ask the principal whether they could use the school bus.

"I will be glad to let you use it," he said. "But who will drive it? The driver is a teacher. He must stay here."

"Maybe the forest ranger would drive us," Susan suggested.

"If he can take you, that will be fine," the principal said.

So the committee called on Dick Pitman. "Will you drive the school bus, to take us to visit the mills, please?"

"I can take you next Thursday, on my day off," he said. Then he added, "I am afraid that you have planned to see more than you will have time for. The place where we are going is almost as large as Evergreen City. It would take more than one day to see everything. Perhaps you had better decide to visit only one mill."





Hundreds of logs have been made into a raft. This is being towed down the river to the mill. Do you know of any other ways of moving logs to a mill?

The children's faces grew long with disappointment.

"Can't we divide the class into groups?" Billie asked. "Each group could go to a different mill. Then we could tell each other what we had seen."

"Yes, that would solve your problem," said Dick. "If next Thursday is all right with your teacher and the principal, I'll be glad to take you."

### Looking Out the Bus Window

Early on Thursday morning, the children started on their long trip. Everyone had brought a lunch. Some had brought extra sweaters, for the morning was chilly and a light rain was falling. Most of the children looked sleepy, because they were not used to getting up so early.

Billie and Susan were wide awake. They wanted to look out the bus window and see everything they passed. They had often traveled over this highway, going to the big city of Portland with their parents. But there was always something new to see.

Today they saw two things that they had never noticed before. One was the many signs that read: KEEP OREGON

GREEN. Now they belonged to the Green Guards and knew what those words meant.

And for the first time, they noticed that the valleys contained many small farms and few trees. They remembered what Grandad had told them about the pioneers cutting the trees to clear the land for farms.

They saw many logging trucks on the highway. Trucks loaded with huge logs were traveling in the same direction they were going. Empty trucks were coming toward them. Susan wondered what the empty trucks had done with their logs.

Presently, the highway turned north along the Willamette River. Susan said, "Look, Billie. Look down by the river. That's where the trucks take the logs."

Dick drove slowly so that the children could see what was happening. They saw a long line of trucks close beside the river. The first truck was dumping its logs into the water. They hit with a mighty splash.

There were many logs in the river. Men were standing on some of the floating logs and pushing others around with long poles.



"What are they doing?" Susan asked.

The ranger answered, "The men are making the logs into a raft. Then a boat will tow the raft to one of the mills along the river."

Before the children reached Portland, they had seen another way of moving logs to a mill. They had seen a freight train carrying logs on flat cars. The ranger told them the train would dump the logs into a pond beside the mill.

They saw another train loaded with lumber. The lumber was on its way to a distant city to be made into houses and stores and furniture.

As they crossed a bridge in Portland, the children saw many large ships in the harbor. The ships had come in from the ocean a hundred miles away. They brought food and many products from other countries. When they went back, they would carry products made or grown in the Northwest. Many of them had stacks of lumber on their decks.

By this time the rain had stopped and the day was clear and bright. The

children enjoyed the beautiful scenery. From here the Cascade Mountains did not look the same as they did from Evergreen City. At home, the mountains were very close and the giant trees that covered their sides were plain to see. Now the mountains were so far away that they looked like big green humps. The trees that made them green were only a blur. Above the green humps the children could see many snow-capped peaks.

Now the bus was traveling along the wide Columbia River.

"Over there, across the river, are the mills," Dick said.

The twins could see many large buildings. Susan thought that each one looked bigger than all the houses in Evergreen City pushed together.

They drove across a long bridge and Dick said, "Here we are. This building is the sawmill. Those who want to see lumber made will get out here. Then I'll drive the rest of you to the mills you want to see. It is too far to walk."

Stacks of finished lumber are waiting to be loaded on this ship at Portland. Then it will be carried to some other part of the country for building houses, schools, and stores.







## Going Through the Sawmill

Susan wanted to see lumber made. She got out of the bus and waved good-bye to Billie. A guide came to meet Susan and her group.

The first thing he showed them was the millpond where the logs were stored. Far out in the water a little boat was pushing the logs around.

"That boat is herding the logs, just as cowboys herd cattle," said the guide. "It is sorting out the ones we want at the sawmill."

A big log was ready to enter the mill. It rode up to the mill on a moving chain.

Then the children went into the mill to see what happened next. All around them was the whine and howl of saws and machinery. Sawdust floated in the air and covered everything in sight. There was a clean smell of fresh-cut wood.

The children went single file along a narrow walk above the machinery. Leaning on the rail, they watched the log enter the mill.

Machinery carried the log, end first, into a big saw. "Zzzinggg! Yowww!" howled the saw. It howled louder and louder as the log moved along. One side of the log fell off and was carried away.

The log moved back to where it had started. Then machinery flipped it over. "Just like flipping a pancake," Susan thought. The log moved into the saw again, and another side was sawed off.

When all four sides were cut off, the log wasn't round any more; it was square. Then it moved down the long room and



1) This "water cowboy" is rounding up the logs that belong to the sawmill. 2) As the log rides into the mill on a moving chain, it is washed with strong sprays of water. 3) The big teeth on this saw zip through the wood easily.



into other saws. They cut through the square chunk of wood as easily as a knife slices cheese. In a short time, the forest giant had been turned into boards, or *rough lumber*.

The guide led them into another room, where the rough lumber was stacked. They could still hear the howl of the saws, but it was quiet enough to talk.

"When lumber is first cut, it is green," he said.

Susan looked at the stacks of lumber.

They seemed yellow, not green, to her.

"I don't mean green in color," the guide explained. "It is called 'green' lumber because it still has moisture in it, just as the living tree had. For most building jobs, lumber should be dry. So we take the moisture out of our rough lumber in this drying room. Some mills dry their lumber outdoors, or in ovens.

"When it is dry, we send it to the *planing mill*, right next door. We will go there now."

These are the big mills that the twins visited. They stretch out for two miles along the river. The plywood plant is at the right; the sawmills and planing mill are in the center; and the pulp mill is at the far left. The logs in the river have been sorted out into the kinds that go to different mills. Notice that in the valley the land has been cleared of forests to make room for farms and towns.





Susan walked outside with the others, toward the planing mill. Even outdoors she could smell sawdust.

In the planing mill, they watched the rough boards go through machines that had sharp knives. These knives shaved, or planed, all the roughness and splinters off the boards. The knives made a high screaming sound, even worse than the saws. Some of the children put their hands over their ears.

Susan ran her fingers over one of the boards that came out of the machines. It was as smooth as satin. Now the boards were called *finished lumber*. They were ready to use.

While Susan's group waited for Dick to pick them up in the bus, they talked excitedly. They planned the report they would give in school. Susan thought that the class would like to make a list

of all the things that are made of lumber.

### DO YOU KNOW?

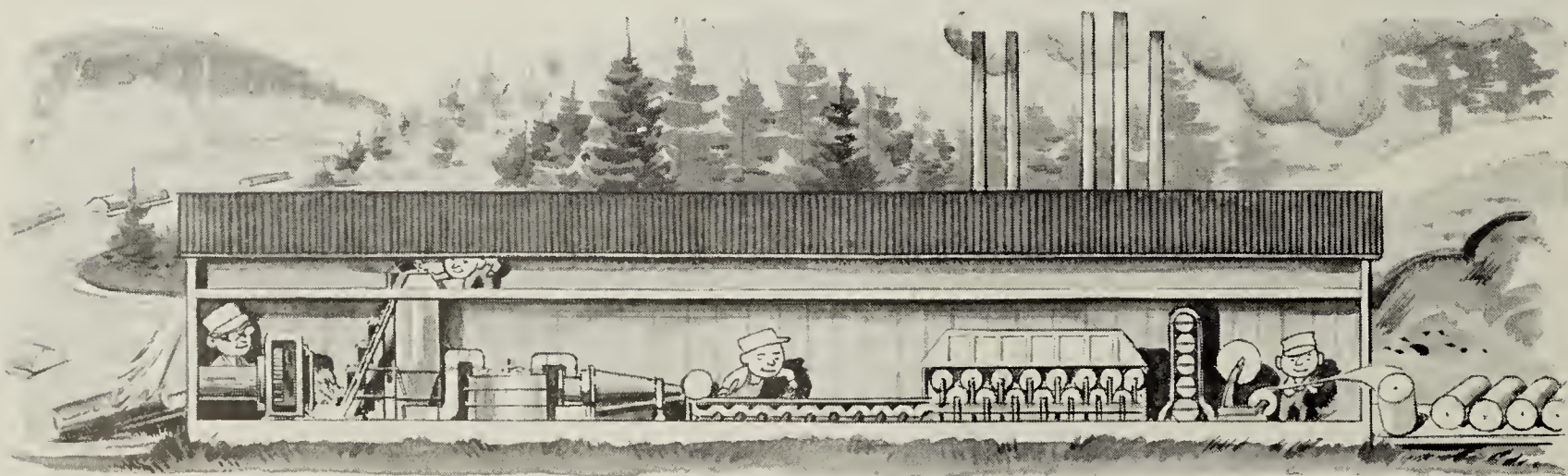
1. In what ways did the children get ready for their trip through the mills?
2. What three ways of moving logs did the children see on their trip?
3. What is meant by "herding logs"? How did the logs in the millpond get there?
4. What happens to a log from the time it leaves the pond until it is lumber?
5. What is the difference between rough lumber and finished lumber? What is green lumber?

### LEARNING BY DOING

Find Portland on a map of Oregon and trace the route ships take in going there from the ocean.

### BEING A GOOD CITIZEN

A good citizen is willing to share his information with others as the men in the mills did. How can you share the information you get in school with others outside?



Washing    Chipping    Cooking    Beating    Draining Water Out    Drying and Ironing    Finished Paper

### How Paper Is Made

The next day, John told what he had seen on the trip. He had visited the pulp mill, where paper is made.

"I watched a log come in from the pond," he said. "Then it stopped, and

machinery began to roll it over and over. Jets of water splashed down on the log. I thought they were washing the dirt off. But the water hit harder than a fire hose, and chunks of bark began flying through the air. Soon the jets of water had torn off all the bark.



“Then the bare log went into a machine that cut it into little chips. The chips came out onto a moving belt. It moved along high above our heads and dumped the chips into a cooker-pot. This cooker-pot was almost as big around as our schoolroom, and it was as tall as a four-story building.

“The chips were cooked with water and chemicals until they turned into a thick soup. This mixture is called *pulp*.

“After being pounded and beaten, the pulp went into a machine about a block long. Here it traveled along on a moving screen, so that the water could drain out. It was turning into a soft wet ribbon of paper. As it moved along, ma-

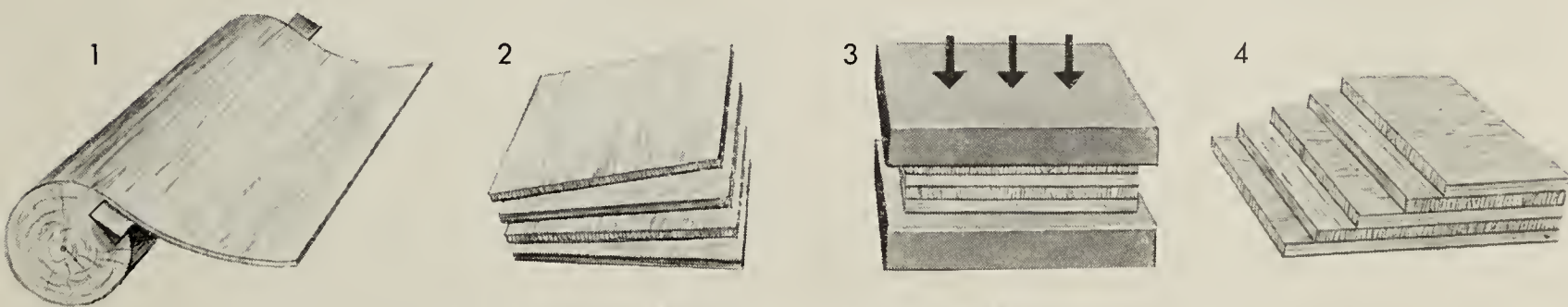
chinery dried the paper and ironed it. Finally it came out at the end of the big machine and was wound into huge rolls.”

For the next few days, the children were busy learning more about paper and its many uses.

### Making Plywood

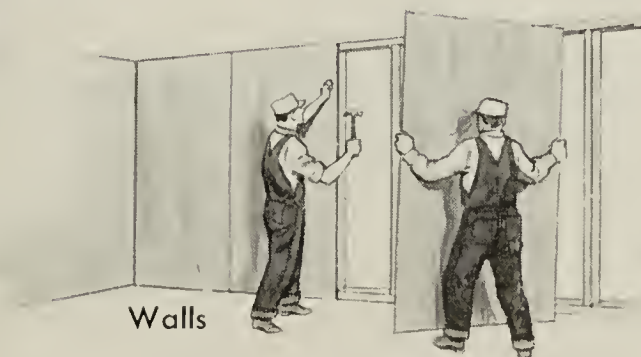
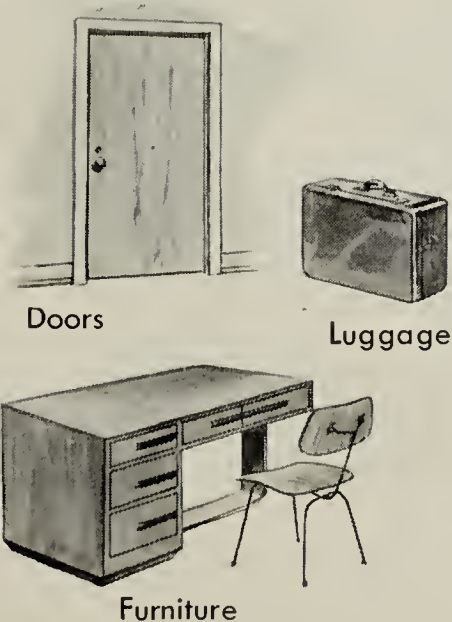
One of the girls told the class about making plywood. “Plywood is made by gluing and pressing thin sheets of wood together. Plywood is very strong. It is light in weight and does not crack or warp easily. Here are some pictures that show how plywood is made and how it is used.”

Plywood is a building material made of thin layers of wood. Most of the logs used for making plywood are short and thick. 1) A log is placed on a machine that turns it around and around. As it turns, a sharp knife shaves off a thin sheet of wood. 2) Sheets of wood are glued together. 3) They are then squeezed together with heavy pressure. 4) Notice that the grain of wood in each layer runs crosswise to the grain in the layers above and below. This makes plywood stronger than other wood.



## How Plywood Is Made

### Some Uses of Plywood





## Billie Makes His Report

Finally it was Billie's turn to make his report. "I wanted to see what they made from the parts of a tree that are usually burned. So I visited the mill that makes 'Pres-to-logs.' They make these smooth little logs out of sawdust. The sawdust is pressed so hard into molds that the logs never come to pieces. Pres-to-logs are used in fireplaces and cookstoves. Ships and trains cook with them.

"Our guide told me that some of the sawdust, bark, and scraps are cooked into pulp. This pulp is made into many useful things. I have a few of them here in this box. You'll all be surprised when you see them."

How the class laughed when they saw what was in the box! There wasn't a single thing that looked like part of a tree, except the Pres-to-log.

"Some of the sawdust is not made into products," Billie continued. "It is

burned to furnish power for the mills. The power runs the machinery. And some sawdust is sold to people who use it to heat their houses."

After Billie's report, the class worked for several days. They built an exhibit of products made from the waste part of logs.

### DO YOU KNOW?

1. How was the bark removed from the logs that were to be made into paper?
2. How is wood made into paper?
3. How is plywood made? How is it used?
4. What uses for sawdust do you know?

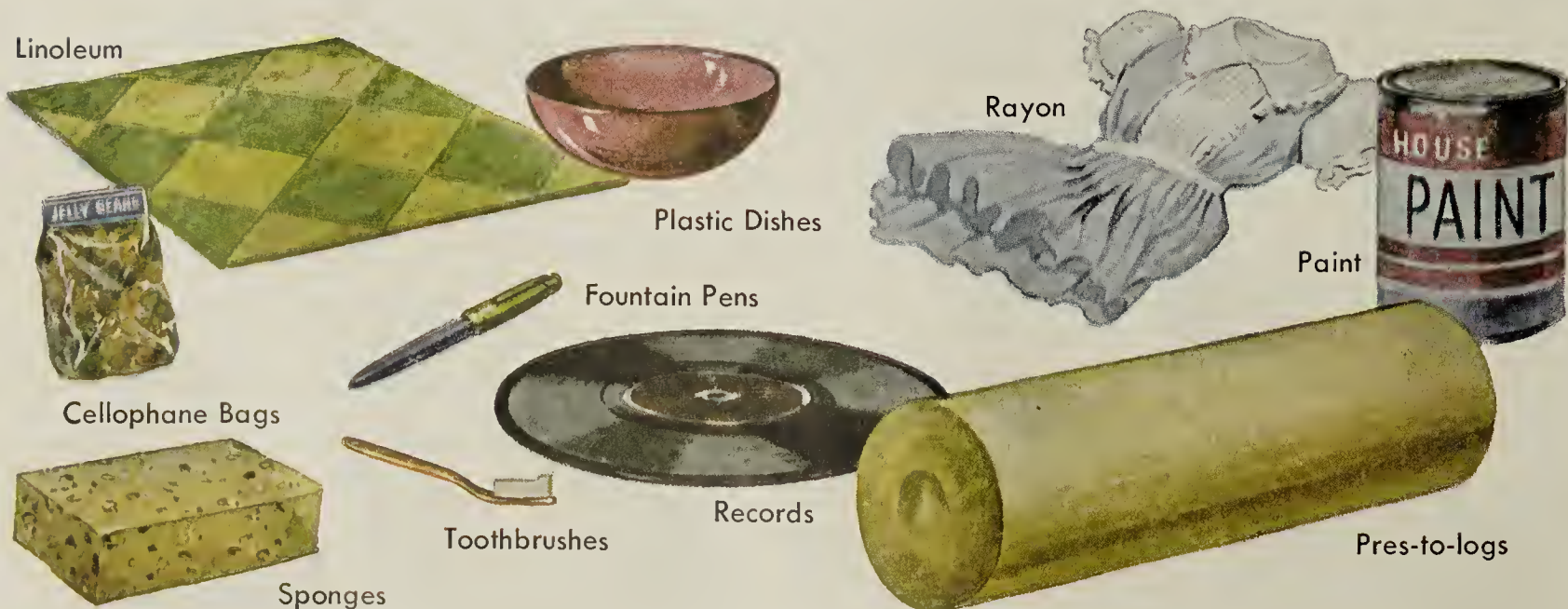
### LEARNING BY DOING

1. You might like to look for samples of many kinds of paper, many kinds of wood, and for products made from the waste parts of logs. Label your samples and arrange an exhibit.
2. Make lists of uses of paper at school, at home, in stores, and in ticket offices.

### BEING A GOOD CITIZEN

The children made a list of questions to ask the guide so that they would not waste his time. Make a list of ways you can save time in school. How can you save time at home?

No wonder the class laughed when they saw what Billie brought to school! They had seen many of these "forest products" every day without guessing that they were made from part of a tree. Finding new uses for sawdust, bark, and scraps that used to be thrown away is one way of using our forests wisely.







## Christmas in Evergreen City

The twins were so busy at school that they didn't realize that winter was coming. The calendar could have told them, but the weather didn't. In the Northwest, fall and winter are very much alike. Gradually, in the winter, it rains oftener and it gets a little colder. But there are many bright days, too.

One day in December, all the Green Guard squads in Evergreen City had a meeting at the high school. One of the high school captains, Tom Roberts, had an announcement to make.

"How many of you want to help cut Christmas trees?" he asked first.

"I do." "So do I," everyone said.

"The United States Forest Service," Tom went on, "is going to let people cut Christmas trees in the national forest. This Saturday the forest ranger will show the Green Guards how the trees should be cut. A reporter will take pictures of us to put in the newspaper. We can write stories about it for the high school paper. And we'll each have a Christmas tree to take home."

Billie raised his hand. He was the captain of the grade school squad. "Is our squad supposed to go, too?"

"Of course," Tom answered. "You can't swing an ax, but you can help in other ways. And later you can tell, at school and at home, about what you have seen. That way we can teach other people how to take care of the forest."

### Snow in the Mountains

On Saturday three carloads of Green Guards went into the national forest to cut Christmas trees. Billie and Susan rode in the truck with the ranger and the newspaper reporter.

The twins were dressed in heavy jackets, caps, and mittens, because the weather was cold that day. As the truck climbed into the mountains, it became colder and colder. They had been driving for about half an hour when Billie said, "Look up there! There's snow on the mountainside." In a little while, there was snow on the ground all around them.



"Why is there snow up here?" Susan asked. "There isn't any in Evergreen City. The flowers are still in bloom."

"It isn't cold enough yet to snow in the valley," answered Dick. "Sometimes we don't have snow in the lower country all winter. But there is snow here because it is higher. The higher we go, the colder it gets."

"That's why Mount Hood and the other peaks have snow on them all summer," the reporter said. "They are so high that it is cold up there all through the year."

### Cutting Christmas Trees

When all the Green Guards had arrived at the meeting place, Dick led them into the forest. It was fun walking through the snow.

"Here are some of the trees we are to cut," said Dick.

Billie and Susan had been whispering to each other. They looked worried. Billie said, "Is it right to cut the little trees? Green Guards are supposed to protect the forest."

"That is a good question," the ranger said. "We are cutting these trees because they are growing too close together. These are Douglas firs and they need plenty of air and sunlight to make them grow big and tall. We are not hurting the forest. We are helping it to grow better."

Dick and the older Green Guards had brought axes with them. "Now I will show you the right way to cut a Christmas tree," Dick said as he went over to a small tree. "First, cut off the branches that are close to the ground. If you try

to cut the trunk without removing the branches, you might get hurt. Your ax might hit a branch, bounce back, and hit *you*."

After the branches were off, he said, "Now you must cut the tree as close to the ground as you can. Never leave a tall sharp stump for people and animals to stumble over."

With a few quick strokes, he cut the tree. Then he showed them how to wrap it with heavy string. This kept the branches from being damaged when the trees were stacked in the truck.

The Green Guards went through the forest looking for places where the little trees needed to be thinned out. The older Green Guards cut the trees, and Billie's squad dragged them out of the woods. They tied their branches together and helped load the truck. The reporter took pictures of all the children as they worked.

Tom Roberts came up dragging a beautiful large tree. "Help me tie this one, Billie," he said. "We'll give it to the church for the Christmas party."

### The Church Party

Before the twins knew it, Christmas was only two days away. The tree they had brought home from the woods was up and ready to be decorated. The tree had been left outdoors in the rain, so it had stayed fresh and green.

When it was brought into the house, the cut end of the trunk was placed in a pan of water. The water would keep the needles from drying out. The twins would keep the pan filled until the tree was taken down after the holidays. They



had learned in their club that dry needles are dangerous. They catch on fire very easily.

Mr. Layton put strings of colored lights on the tree, and the twins hung bright ornaments and tinsel on the branches. They popped corn and strung it to decorate the tree.

Susan helped her mother cut holly from the holly tree in their front yard. They fastened the branches to a circle of wire. This made a beautiful wreath. They hung the wreath on the front door before they walked to the church for the Christmas program.

All the way to the church, the twins hopped and skipped and sang. They loved Christmas. They loved the little trees shining brightly through the windows of the homes they passed. They loved the huge tree covered with lights that stood in the center of town.

Mr. Layton turned up the collar of his overcoat. "It certainly is cold tonight," he said. "It must be almost freezing."

"Just be glad it isn't raining, for a change," Mrs. Layton said.

The whole family took part in the church program. Mrs. Layton led the carol singing. Susan and Billie were in a Christmas play. Mr. Layton gave candy canes to all the children.

### Skis for Christmas

Christmas morning, Susan and Billie were the first ones up. "It's snowing! It's snowing!" they shouted, as they ran in to wake their parents.

These beginning skiers are learning to walk uphill on skis. It's hard work going up, but what fun to come swooping down fast!

Everyone looked out the window. It was a surprise to see snow so early in the winter. There was only a little on the ground, but the air was full of big fluffy flakes.

"Let's hurry and open our presents," Billie said. "Then we can play in the snow."

He shouted with joy when he opened a long thin package. It was the pair of skis he had been wishing for. Susan had a pair, too. Now they could learn to ski on Mount Hood, where many people went to enjoy winter sports.

### DO YOU KNOW?

1. How are fall and winter in the Northwest alike? How are they different? What are fall and winter like where you live?
2. How is the temperature in the valley and on the mountainside different?
3. Why was it all right for the Green Guards to cut little trees for Christmas trees?
4. How do the people in Evergreen City work together? How do they play together?
5. Why was the Christmas tree set in water?
6. How did the family prepare for Christmas?

### LEARNING BY DOING

Make a list of things you can do to help people in your town have a better Christmas.

### BEING A GOOD CITIZEN

Why were the Green Guards willing to work all day without pay? Do you know others who have done so? What do you do without pay?





# The Green Guards Plant a Forest

It seemed to the twins that the weather would never get warm and sunny. The calendar said that it was spring. But it rained and rained, just as it had most of the winter.

Every day Susan sang, "Rain, rain, go away. Billie and I want to play." But the rain paid no attention. So the twins paid no attention to the rain. They played outdoors anyway.

In the garden, the daffodils and tulips came up and bloomed. In the forest, the trilliums and wild currants were in flower. The fir seeds sprouted with feathery green shoots.

The forest ranger did not mind the rain. "This is perfect weather for the work we are doing this month," Dick said to the twins. "I'm coming to your

Green Guard meeting today to tell you about it."

That afternoon the ranger told Billie's club that he had a surprise for them. "But first," he said, "I want to tell you a story."

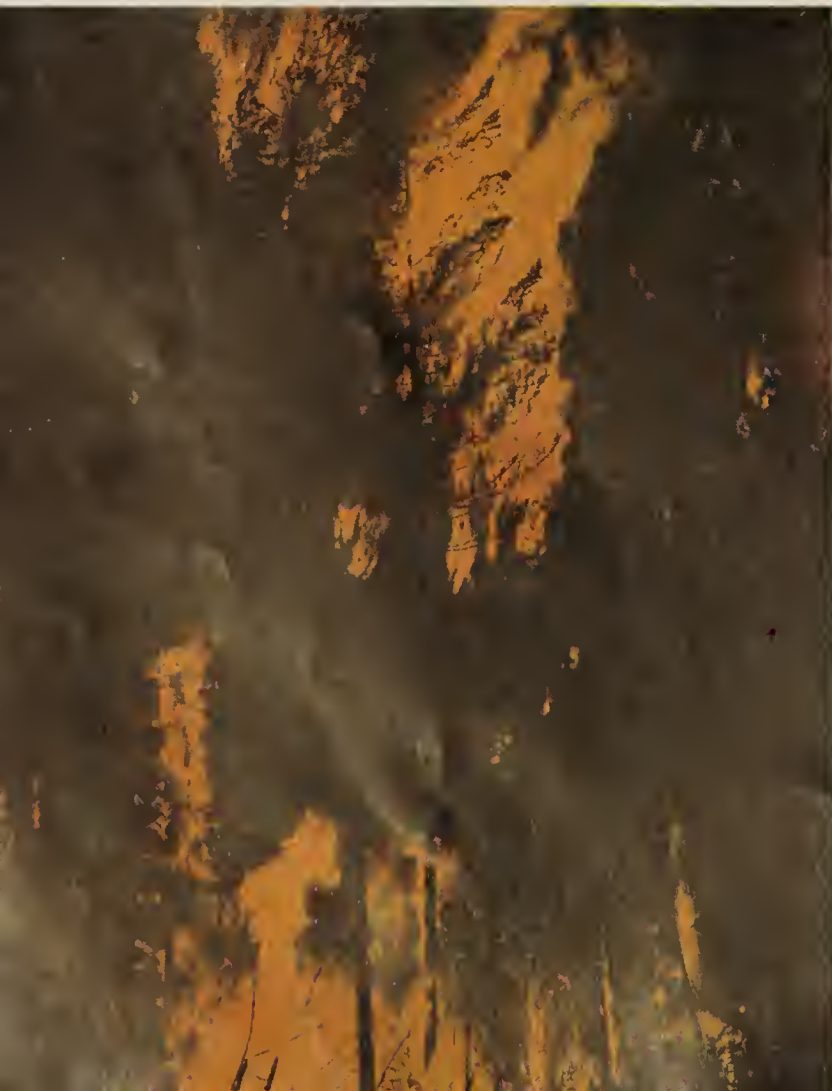
## The Ranger Tells a Story

"Many years ago, a perfect little fir tree grew in the forest. It grew on a ridge where there was plenty of sunlight, so it was strong and sturdy. In time, it grew into such a fine big tree that people called it the king of the forest.

"One day some loggers went into the forest. They saw the giant fir on the ridge, but they didn't cut it. 'This is a very fine fir,' they said. 'It will make a good seed tree. We will leave it here, with some other seed trees. Then when the seeds are ready, the wind will scatter them down the mountainside. The seeds will sprout, and someday there will be many fine trees to take the place of the ones we cut.'

"Then the loggers cut all the trees except the ones on the ridge. When the cones on these seed trees opened, the ripe seeds were scattered by the wind. Soon there were many tiny trees growing among the old stumps. They grew very fast because they had plenty of sunshine.

A forest fire travels swiftly. It races along the ground and leaps from one tree to another. Fire is the worst enemy of our forests. It kills the trees and destroys the food and shelter of birds and animals that live in the forest. How can you help prevent forest fires?





After a forest fire, most of the trees are burnt, black, branchless snags. The beauty of the cool green forest has been lost.

"At the bottom of the mountain was a road. Not long ago, a careless man was driving along the road. He threw a lighted cigarette out the car window; it rolled into some dry grass and started a fire. At first it was just a tiny fire. A Green Guard could have put it out with one bucket of water.

"But no one was there, and the fire grew bigger and bigger. It reached the forest of young trees. Soon the whole mountainside was ablaze, for fire travels fast. Even a deer cannot run as fast as a forest fire.

"The fire leaped to the ridge and burned up the king of the forest. All the other seed trees were killed, too. Now Mother Nature has no way to grow new trees on that mountainside.

"The land there is too steep and rocky for farms. But it is just right for growing trees. Since Mother Nature cannot plant the trees on this mountainside, we must do it for her. Would you Green Guards like to help the forest rangers plant the new trees?"

"Yes! Yes!" they all shouted.

"Then," said Dick, smiling, "I'll tell you the surprise. Tomorrow you will be excused from school to go with us. The high school Green Guards are going, too. We rangers will show you how to plant the trees. And we will take along enough food for everyone."

"Whoops!" said Billie.

"Hurrah!" said Susan.

"Be sure to wear warm clothes," Dick warned them, "and boots or overshoes."



### The Tree Farm

The next day, as Dick drove the bus, he told the young Green Guards many things.

"Do you see those hills and mountains covered with trees?" he asked. "Most of that land belongs to our government. It is called a national forest. We forest rangers take care of that forest. The rest of the land is privately owned. A big timber company owns part of it. That is the company that many of your fathers work for.

"Timber companies are taking better care of their forests than they used to. They are learning to think of trees as a crop, like wheat and corn. After a farmer cuts his wheat, he plants more to take its place. He protects his crop from insects and disease. He always saves enough seed to plant another crop the next year.

"The timber company that owns this land takes care of its trees the same way a farmer takes care of his crops. It even





calls its forest by a new name—a *Tree Farm*.\*

“There are Tree Farms in many other states besides Oregon. The owner of a Tree Farm promises to protect his crop from all its enemies, especially fire. He cuts only the trees that are ripe.”

The children laughed. They had never heard of a ripe tree.

“A tree gets ripe, just as an apple does,” Dick said. “Then it becomes rotten and dies. It is wasteful to let a tree die. Then it is of no use to anyone.”

### The Forest Nursery

The bus slowed down. “Here is the Forest Nursery,” Dick said. “This is where we grow the little trees to plant wherever Mother Nature cannot plant her own.”

Susan thought the nursery looked like a big farm. There were plowed fields with rows of something green growing in the dark-brown earth. “It looks like acres and acres of carrots, with their feathery tops,” she said.

“Those are little trees,” answered Dick. “You might as well get out and look

Thousands of little fir trees are growing in this Forest Nursery. The pipes above the rows can be used to sprinkle the ground in dry weather.

around. It will take me a little while to get the trees we are going to plant today.”

### Planting a New Forest

After leaving the nursery, they soon reached the place where they were to plant the trees.

It made the twins sad to see what the forest fire had done. There was nothing on the mountain slope but weeds and black *snags*. Many of the snags had fallen over. They looked like spilled matches.

The rangers divided the Green Guards into teams, with a boy and a girl on each team. They showed the boys how to dig a hole in the damp ground with a hoe. Then they showed the girls how to place the little tree in the hole. Dick said, “Spread the roots out, and press the dirt down firmly around them.”

The teams of older Green Guards each had fifty trees to plant. Billie and Susan were given a package containing twenty trees. The trees were so small that Susan could hold the package in one hand.

Up the mountainside went the twins. For a while they laughed and talked as they worked. Soon they quit laughing. Then they quit talking. They just worked. Planting twenty trees was not easy. But they kept on until they had finished.

By that time they were so tired that they thought their backs would never straighten up again. Just then they

\* The picture on page 31 shows a Tree Farm.



heard a shout: "Come and get it, everybody!"

The twins forgot their aching backs and raced down the slope.

They had never tasted anything quite so good as those steaming hot dogs. They ate three apiece and drank lots of hot chocolate.

All the Green Guards were happy about the good job they had done. They and the rangers had planted nearly 2,000 trees. Little spots of green showed all over the mountain slope.

This was their very own Green Guard forest. As years went by, they could watch their little trees grow into sturdy giants.

Billie digs a hole with the hoe, while Susan waits to plant another little tree. All working together, the Green Guards are planting a new forest to replace the one which was destroyed by fire.

### DO YOU KNOW?

1. Do you know the story that Dick told?
2. What is a Tree Farm? What does the owner of a Tree Farm promise to do?
3. What is meant by a ripe tree?
4. What is the purpose of a forest nursery?
5. How should little trees be set out?

### LEARNING BY DOING

Perhaps you would like to set out a tree or plant some flowers in the spring to make your school yard or your town look better. This is a good time to begin making plans.

### BEING A GOOD CITIZEN

The trees set out by the Green Guards may help other people more than they help the ones who did the work. What are people in your community doing that will help those who come later?





# Camping in the Forest

School was out before warm, sunny weather finally came. Then the twins could spend most of their time outdoors. Soon they were almost as suntanned as the forest ranger.

They played, and they worked in the garden. They took turns mowing the lawn. And oh, how that grass did grow!

They looked forward eagerly to their camping trip in the forest. That was the best part of summer vacation. For a whole week there would be no weeds to pull or lawns to mow.

One Saturday morning, Mr. Layton said, "If this dry weather continues, we may not be able to go camping. For three weeks we have had no rain. The forest is very dry. If there is danger of fire, the rangers won't let us camp in the forest. I think I'll drive up to the fire lookout on Baldy Mountain. The *smokespotter* there will know whether we can go camping."

The twins begged to go with their father. They, too, were anxious to find out whether they could camp in the forest.

After they left the car near the top of Baldy Mountain, they had a long climb to the lookout tower. Billie and Susan felt as if they were on top of the world. They could see miles and miles of forest land and winding roads.

Dick Pitman was at the tower with the smokespotter. He was watching the forest through his field glasses.

"We had a call about a fire along the main highway," Dick said. "I think the firefighters have put it out now. They went there with their short-wave radio, water trucks, hoes, and axes—all the firefighting tools they might need. In weather like this, they must be prepared for anything."

"Who reported the fire?" asked Billie. "A Green Guard?"

"No, it was a salesman who was driving along the highway," Dick answered. "Good citizens often report fires before the smokespotters can see the smoke. Then it is possible to put out the fire while it is small, before it can do much damage."

"The Green Guards were told that forest fires damage our *watershed*," said Susan. "But I don't understand what a watershed is."

"Look out the window and you'll see one," the ranger replied. "All that forest land is called a watershed. A watershed is an area of land that supplies a stream with water."





"We have a healthy watershed when the mountain slopes are covered with trees and plants. Then the forest floor is a deep layer of old needles and leaves. This layer is like a giant sponge. It lets the rain and melted snow soak slowly into the ground. It keeps the water from rushing swiftly downhill.

"Finally, the water finds its way into the stream in the valley. The water is clear and good to drink, because it has been filtered through the ground.

"Our good watersheds give Oregon many fine rivers. The rivers are full of fish, because they never go dry. The forest on the watershed gives protection to wild animals. The forest meadows furnish food for them.

"Our clear rivers are useful as well as beautiful. We build storage dams across them to supply people with drinking water. We build power dams, so that the falling water can make electricity.

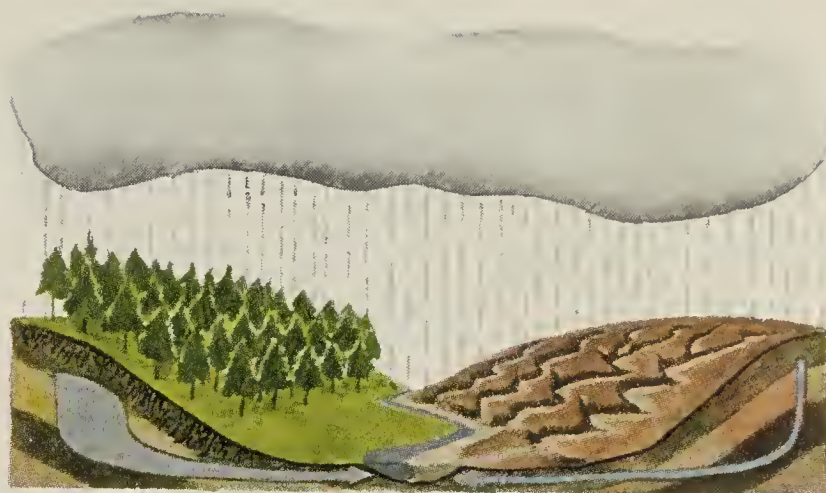
"So you see, all of us benefit from a healthy watershed that has not been damaged by fire."

The twins were so interested in the ranger's story that they had almost forgotten why they came to the lookout tower. Now they listened while their father asked whether the forest was still safe for camping.

"It will be safe for a while," said Dick. "But you'd better go right away. And be very careful. But I'm sure the Layton family has good camp manners."

### Packing for the Trip

When they reached home, the twins ran to their mother. "We're going camping," they shouted. "Today!"



Much of the rain which falls on forest land soaks into the ground. Then it moves slowly to creeks and rivers. When it gets there, the water is clear and clean. What happens to rain that falls on land from which the trees have been removed? What can we do to keep our country green?

"Today!" she exclaimed. "Why, we aren't ready for the trip."

Mr. Layton said, "If we don't go today, we may not be able to go at all. The fire danger may last until after school starts."

"If we're going today," Mrs. Layton said, "everyone must help pack."

They all got to work quickly. Mr. Layton got the tent and the sleeping bags from the attic. Susan helped her mother pack plastic dishes, silverware, food, and cooking pans. Billie got the fishing tackle ready and put it in the car.

"Be sure the ax and shovel and bucket are in the car, Billie," said his father. "We must never go into the woods without them. They are good firefighting tools."

Usually it took a whole day to get ready for their camping trip. But today, with everyone working together, it took only two hours.

After Mr. Layton had asked the neighbor to water the garden, they were on their way.





Chipmunks, beavers, and bears all find food and shelter in the forest. Can you think of any others?

### The Camp by the Mountain Stream

The place where the Laytons camped in the summer was not far from where Mr. Layton was working. It would be easy for him to drive to work from camp. Mrs. Layton and the twins would be left alone all day, but they didn't mind. They would have plenty of things to do in the forest.

When they reached the camp ground, Billie and Susan were the first ones out of the car. How quiet it seemed! The only sound was the soft chuckling of the little stream nearby. How cool the air was, and how good it smelled! Everywhere was the fresh sweet smell of ferns and fir needles. The forest floor was soft and springy to walk on.

The twins raced down to the stream. It was as bright and merry as they remembered it from last year.

Billie frowned and pointed. "Somebody's been using our camp."

"The forest belongs to everyone," Mr. Layton reminded him. "We want other people to enjoy it, too."

"They shouldn't leave it like this," Billie answered.

Billie was right. No one should leave a camp scattered with empty cans and garbage. That is not good forest manners.

While Mr. Layton put up the tent, the twins dug a hole and put the trash in it. Then they covered it up. Now the camp was clean and neat again.

"Why don't you go fishing while I fix dinner?" Mrs. Layton suggested. "But first, please gather wood for the fire."

In a short time, the odor of fried potatoes, ham, and eggs floated through the air. The twins stopped fishing and hurried back to camp, for they were very hungry.

### Animals in the Forest

In the daytime, while Mr. Layton was working, the twins found much to do. They built little dams of rocks in the stream and caught crawfish. They fished for trout close to camp. Every day they fed the cute little chipmunks. Several times a day they had to shoo the camp robbers away. These bold birds were always trying to steal food from the table.

Often Mrs. Layton took them exploring. Each time they saw something new. Once they discovered fresh deer tracks beside the stream. Another time Billie found where a beaver had cut down a small tree.

One day when they were climbing through the thick brush by the stream,





Mrs. Layton stopped suddenly. "Shsh!" she warned, with a finger on her lips. She pointed across the stream.

There on the sunny hillside was a big black bear. She was eating wild berries. Near her, two little cubs wrestled in the grass. They tumbled about like children playing. The twins and their mother did not move until the bear and her cubs had gone away.

### Smoke in the Air

One morning when they woke up, the air was not clear and cool as it usually was. There was smoke in the air. It made the sun look like an orange in the sky.

"There's a forest fire somewhere," Mr. Layton said, as he got ready to go to work. "Thank goodness, it's a long way off. But I think we should go home this afternoon. Billie, be extra careful with the campfire today."

After the breakfast dishes were washed, the twins carried water from the stream and poured it on the fire. Then they put some dirt on it. Finally, they felt the ashes, to make sure that they were cold. That was the way the Green Guards did.

Billie and Susan were disappointed that their holiday was almost finished. They asked their mother to go exploring with them one more time.

"I must pack things for the trip home," she said. "You two may go by yourselves if you don't go too far. Stay close to the stream, and then you won't get lost."

Billie and Susan explored along the stream for almost an hour. Then they



smelled coffee cooking. Coming closer, they saw two fishermen eating their lunch beside a campfire.

Billie thought that the fire was built too close to the dry brush along the bank. As he and Susan walked farther, the more he worried about that fire. Suppose the men weren't careful about putting it out!

Suddenly he stopped. "Let's go back, Sue," he said. He turned around and hurried down the path. Susan could hardly keep up with him.

All at once, he stopped again. "Sue, do you smell anything?" he asked.

"I smell smoke," Susan answered, "but it's been smoky all day."

"This is fresh smoke. It's close by," said Billie. "Come on, Sue. Let's run."

As fast as they could, they ran back to where they had seen the two fishermen. The men had gone, but they had not put out their fire. What Billie feared had already happened! The dry grass where the men had been sitting was now a mass of little flames. They were spreading toward the trees and brush.





Billie and Susan are fighting the fire to keep it from spreading into the forest. As Green Guards they know how important it is to keep small fires from growing into big ones.

### The Twins Save the Forest

For a moment the twins were so frightened that they couldn't think what to do. They had no tools to fight the fire, not even a tin can to carry water. Oh, if they only had a shovel, to dig a trench around the fire and throw dirt on it! But there was no time to go back to camp for the shovel and the bucket. They would have to fight the fire without any tools.

Susan grabbed a flat rock and began beating at the flames. She stamped out sparks that flew into new places.

Billie tore off his shirt and soaked it in the stream. He beat at the fire with the wet shirt.

With their hands they scooped away the dry grass around the blaze, so that it couldn't spread any farther. Susan found a small board and used it to shovel dirt on the flames.

The smoke stung their eyes and made it hard to breathe. But they didn't quit fighting the fire. They had never worked so hard in their lives.

"Hey! Hey, there!" someone shouted. Billie and Susan looked around.

The forest ranger and the firefighters had come. Never had the twins been so glad to see their friend, Dick Pitman!

The firefighters had tanks of water on their backs. They turned the hoses on the burning grass.

"Are you all right?" Dick called, as he ran up to the twins.

Billie and Susan weren't hurt except for a few blisters on their hands. But they were very dirty and very tired. Dick made them sit down and rest.

Just then Mr. Layton came running along the stream in search of the children.

"Everything's okay. The children are safe," Dick told him. "The smokespotter



saw the smoke from his lookout tower and sent us here. Now the fire is out. You should be proud of Billie and Susan, for they have saved the forest."

For once, the twins were glad to leave the forest. They wanted to get home to a warm bath and a soft bed. They felt like sleeping forever.

### The Green Guard Award

By the time school opened a few weeks later, the twins had almost forgotten about the excitement of the fire.

On the second day of the fall term, Billie saw a notice on the bulletin board. It read: "All Green Guards will meet in the high school auditorium after school today. This is an important meeting."

"I wonder what the meeting is about," said Susan.

"Maybe it is time to send in the reports we have kept all summer," Billie said.

When they arrived at the meeting, they were surprised to see so many grownups. They saw their father and mother and also the parents of many other Green Guards. Even the mayor of the town was there. So was Dick Pitman, in a fine new uniform.

The ranger stood up. "This is a special meeting today," he announced. "Will Billie and Susan Layton please come to the front of the room?"

The twins could hardly believe their ears. They stood in front of Dick while he said something to them about "heroism" and "service under fire."

Then the ranger gave Billie a fine pocketknife. He handed a lovely scarf to Susan.

"And here," he said, "are the badges you have earned for putting out the fire. This badge is the highest honor in the Green Guards." He pinned the badges over their hearts.

Susan and Billie could only say "Thank you" in very low voices. But their hearts were almost bursting with pride. They knew that as long as they lived they would keep their badges. They would always be loyal Green Guards and protect the giants of the forest.

### DO YOU KNOW?

1. What are some good firefighting tools?
2. What is meant by a watershed? Why are watersheds important?
3. In what ways are rivers useful?
4. What are good camping manners?
5. How did the twins spend their time at camp?
6. How did the twins save the forest?
7. What are different ways of fighting fires?
8. Which do you think made the twins happier, the Green Guard award or knowing that they had helped to save the forest? Why?

### LEARNING BY DOING

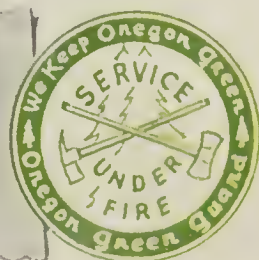
1. Would you like to make a list of rules for good camping manners? Rules for picnics in a park or forest would be helpful.
2. Pretend to be Billie or Susan and write a letter to a friend telling about the most interesting thing you did.

### BEING A GOOD CITIZEN

Billie was not happy until he went back to see if the campers had put out their fire. Do you think we should try to correct other people's mistakes? Why or why not?

## Green Guards Praised for Forest Fire Aid

Evergreen City: Two young members | prove their heroes under fire | it will be the slogan to keep Oregon in its green glory and save our forests is







Everyone worked together to build the new maloka. The men put up a framework of tree trunks. Then they covered the walls and roof with thick palm-leaf mats that were made by the women and children. Notice the stumps where trees have been cut down to make a clearing in the rain forest.

## Living in a Hot, Wet Rain Forest

Pimwe is an Indian boy. He lives in South America, in the country of Brazil. Turn to the world map in your Atlas. Can you find South America? Can you find Brazil?

Did you notice that Brazil is crossed by a line called the *equator*? Lands near the equator are warm all through the year. The temperature does not change from season to season as it does where we live.

To Pimwe the weather seems the same every day. The sun comes up at about six o'clock. It is bright and hot. By noon the sun is almost directly over Pimwe's head. It is so hot that all the people and even the animals try to find shelter in the shade of the trees. The sun does not go away until six o'clock at night.

Almost every day, right after noon, white clouds begin to pile up in the sky.

Soon the rain starts to pour down. Pimwe runs for home or slips under a palm leaf as big as an umbrella. The birds in the trees are quiet and the baby monkeys cling to their mothers, trying to keep dry. This is one of the rainiest regions in the world.

The hot sunshine and heavy rains make the trees grow fast in this region. There are trees everywhere. Once Pimwe and his brother climbed to the top of a tree. They wanted to see what the rest of the world was like. They thought that if they climbed high enough they could see beyond the forest.

Up and up they went, but the higher they climbed the more forest they saw.

"It's no use," Pimwe finally called to his brother. "There is nothing in the world but forest."



The forest in this hot, wet region is called the Amazon rain forest.

### The Great River

Pimwe's home in the forest is near a great river called the Amazon. It is the largest river in the world. The map on page 63 shows clearly the Amazon River and its branches.

One day Pimwe's mother asked him to find some turtle eggs for supper. He went down to the river and walked along the sandy shore looking for turtle tracks.

Suddenly Pimwe's sharp eyes saw where a turtle had come out of the water. He followed the tracks and in a few minutes found where a mother turtle had buried her eggs.

Pimwe took as many eggs as he could carry in both hands. Then he started back through the forest to the village. The forest was dark and gloomy. The trees were so close together that only a little sunlight came through the thick tops. A flock of parrots screeched at him and monkeys scolded from the trees.

Pimwe started to run. In a few minutes he reached the edge of a *clearing* in the forest. "Look, look!" he called to his mother. "Turtle eggs for supper."

### The Maloka in the Clearing

In the middle of the clearing stood a large house that looked like a haystack. Pimwe's family and twenty-four other families lived in this house. It was called a *maloka*.

Inside the maloka it was as dark as it was in the forest. Only a little sunlight came in through the doors at each end of the house. There were no windows.



This is South America. Is the greater part of it north or south of the equator? What oceans lie next to South America? In which direction does the Amazon River flow?

Each family had its own place in the maloka and its own fire. Pimwe's mother never let their fire go out. In the daytime she cooked their food over the fire. At night the fire kept them warm, for it is often chilly in the rain forest when the sun goes down.

### The Cooking Pot

Pimwe's mother did all her cooking in a big pot hung above the fire. Because uncooked food spoils quickly in the hot, wet forest, it was cooked as soon as gathered. Everything—fish, frogs, wild pig meat, deer meat, and sweet potatoes—was put into the cooking pot.

The men and boys hunted animals in the forest and caught fish in the river. The women and girls worked in gardens in small clearings near the village. They grew sweet potatoes, corn, pumpkins, beans, peppers, and pineapples. But the chief crop was manioc.





The manioc plant grows three or four feet high. The narrow leaves are eaten as a vegetable. The thick, fat roots are made into a kind of flour. This flour is used to make bread.

The manioc plant grows well in the hot, wet lands of the world. The tapioca we use in puddings comes from the manioc root. The top branches, when stuck into the ground, will grow into new plants.

As soon as the food was cooked, Pimwe and his family started to eat. Each had a palm leaf for a plate. They ate with their fingers because they had no forks or spoons.

### Clothing of Bark

The children in Pimwe's village do not go to school. But every day they learn something by working with their parents. Pimwe learned to make his clothing when he was about seven years old. His father helped him cut a long strip of bark from a tree. Then they separated the inner bark from the outer bark. Pimwe soaked the inner bark in the river until it was soft. Next he pounded the

This map shows you where Pimwe lives. The maloka is in a clearing in the forest. How many clearings do you see on this map? Why do Pimwe's people make new clearings? Would you like to live in this part of the world? Why or why not?







This is a map of the Amazon Lowlands. Near which ocean does the Amazon River get its start? Into which ocean does it flow?

bark with a wooden hammer until it felt like cloth. How proud he was when he tied his new breechcloth around his waist!

The breechcloth is the only clothing that Pimwe wears. He does not need clothing to keep him warm in this hot land.

### Time to Move

Everyone in the village knew they would have to move soon. The roof of the maloka was beginning to leak. The hunters reported that wild animals were hard to find near the village. And the women said, "The manioc no longer grows well. The sweet potatoes are so small we can hardly find them in the ground. We have used all the richness in the soil. Let us clear a new field where the soil is not worn out."

One day the chief and all the men gathered in a big circle in the maloka. They talked about the poor hunting, the bad crops, and the leaky roof of the maloka. Finally, they decided to move the village.

"Where shall we go?" asked one of the younger men.

The wise old chief answered, "Our new village must be near new hunting grounds. It must not be too close to the river, where many insects live. The village and the gardens must be on higher land so that they will not be flooded when the river overflows."

A few weeks later they began to make a new clearing in the forest. They cut and burned down the trees. Then they built a new maloka. Everyone helped. They used tree trunks for the frame of the house. They covered it with a thick layer of palm leaves to keep out the rain.

When the new house was ready, the chief invited the people from a neighboring village to join in the celebration. For four days everyone sang and danced and ate. Pimwe had never been so happy!

### The White Traders Come

One day the chief of Pimwe's village called a meeting of all the men. He said, "White traders are coming soon. Let us gather up our nuts and rubber so that we may trade with them."

Pimwe's father had several balls of rubber to trade. He had gathered



liquid rubber from the rubber trees that grew wild in the forest. Later he dipped a flat stick in the liquid rubber and heated it over a smoky fire. As soon as the rubber hardened, he dipped the stick in the liquid again. Soon he had a big ball of rubber on his stick.

Pimwe's mother had woven many beautiful mats of grass. Pimwe and his brother had gathered Brazil nuts for the traders.

Everyone in the village was down at the river bank when the traders arrived in their boat. How happy Pimwe and his brother were when the traders gave them shiny knives in exchange for their nuts. Pimwe's mother got a new kettle, some cloth, and a few beads for her mats. Pimwe's father traded his rubber for a new steel hoe, an ax, and some fishhooks.

After two days the traders loaded their boat with the products of the forest. They said good-bye to their friends and started down the river.

The traders stopped at several other villages. Finally, when their boat was full, they headed for the city of Manaus, on a branch of the Amazon River.

## A Large City in the Rain Forest

How amazed Pimwe would have been to see this large modern city! The big ships, the large buildings, the electric lights, and the airplanes would have been a strange and wonderful sight to a boy of the forest.

From the big boats Pimwe would have seen men unloading things from the United States and Europe. There would be sewing machines, knives, pots and pans, steel hoes, fishhooks, and cloth. Later they would load the boats with products from the forest, such as rubber, nuts, plants from which medicines are made, and perhaps a little lumber.

## Many Trees but Little Lumber

The forests in the northwest part of the United States are very valuable. They provide us with lumber to build homes and to make furniture and other products.

But very few trees in the Amazon rain forest are used for lumber. The good lumber trees are scattered widely through the forest. There are few roads or rail-



In the forests of the United States the workers use tractors, trucks, and modern machinery to cut and move logs. In Pimwe's forest much of the work is done by hand. Far around the world in Asia, some of the forest workers have trained elephants to do the heavy work of moving logs.

*Ewing Galloway*





Here are the forest lands of the world. You will find them where it is not too dry or too cold. Are the forests only near the equator? Name the continents that have large areas of forest land.

roads in the forest to bring the lumber out. Men who are needed to take lumber from the forest do not care to live in such a hot, wet land. So it costs more to get lumber from the Amazon rain forest than from the forests of our northwest.

A few of the more valuable trees in the Amazon rain forest are now cut and sold to factories making fine furniture. Perhaps someday more trees will be cut for this purpose.

### Forest Communities Near and Far

We have explored in two important forests. There are many others on every continent except Antarctica. We should remember that forests appear in places where there is a great deal of rain. The temperatures may be cold or hot and the land level or mountainous but there must be plenty of water for trees to grow.

### DO YOU KNOW?

1. What is the weather like near Pimwe's home?

2. What can be seen in the Amazon rain forest?

3. What is life in a maloka like? Who teaches the children? What do they learn?

4. What work do these people do?

5. Why was it necessary to move? What was the new maloka like? Where was it built? Who helped to build it?

6. What did Pimwe and his family have for the white traders? What did they get from the traders?

7. What can be seen in Manaus?

8. Why is very little lumber taken from the Amazon rain forest?

### LEARNING BY DOING

1. Try to draw an interesting picture that shows Pimwe's people and the white men trading with each other. Show it to your classmates.

2. You might like to build a maloka of twigs and leaves. Can you show the forest?

### BEING A GOOD CITIZEN

The men of Pimwe's village talked together about their problems. Then they asked the chief to help them because he was old and wise. What kinds of problems can you talk over with others? What older people might be able to help you?



## A New Look at Forest Communities

### THINGS TO TALK ABOUT

1. In what parts of the world can we expect to find forests?
2. In what ways are the Northwest rain forest and the Amazon rain forest alike? In what ways are they different?
3. Why should people everywhere try to protect their forests? How can they do it?
4. What do you think are the most important uses of forests?
5. Tell about forests you have seen. In what ways were they like those you have been reading about? In what ways were they different?
6. Compare the picture maps of Evergreen City and Pimwe's community, on pages 32 and 62. What things are alike? What things are different?

### CHECKING YOUR SKILLS

We can learn much from pictures if we take time to read the stories they tell. We can help ourselves to understand pictures better if we do some or all of these things:

1. Read what is printed near the picture.
2. Ask ourselves these questions or other good questions as we study the pictures.
  - a. Does this show something in our country?
  - b. What is the most important thing shown?
  - c. What are the people doing? Why?
  - d. What do I know about the animals shown?
  - e. Can I name the plants? In what ways are they useful?
  - f. What season is shown?
  - g. What story has this picture told me?

### BEING A GOOD CITIZEN

The people that we have been reading about try to use their forests wisely. Are you as careful about the way you use things that belong to you? How do you care for your homes and your clothes? Do you waste paper or other supplies?

Do you make the best use of your schoolbooks? Do you think about what you read? Do you study the pictures? Do you think about things you have seen and stories you have read that will help you understand better?

Make a list of ways that you can use your schoolbooks more wisely. Talk about your list with your classmates.

### BOOKS TO ENJOY

Baker, Charlotte, *Kinnery Camp*. The adventures of two boys in an Oregon logging camp where their mother was cook.

Buff, Mary and Conrad, *Big Tree*. How one big tree was spared.

Cormack, M. B., *The First Book of Trees*. Interesting information and good pictures.

Fenton, Carroll Lane, *Wild Folk in the Woods*. Stories of deer, owls, chipmunks, and other animals of the forest.

Henderson, Luis, *The Life Story of a Beaver*. Adventures while building a home, gathering food, and escaping from enemies.

Leeming, Joseph, *Fun with Paper*. Making toys and doing tricks with paper.

Lent, Henry B., *From Trees to Paper*. Lumbering and paper making in Canada.

McClung, Robert M., *Spike, the Story of a Whitetail Deer*. His escape from a forest fire.

Melrose, Mary and others, *Raindrops and Muddy Rivers*. The good and harm done by water.

Norling, Jo and Ernest, *The First Book of Water*. How water travels, helps us, and provides fun.

Norling, Jo and Ernest, *Pogo's Letter*. John and Pogo visit a paper mill.

Pistorius, Anna, *What Tree Is It?* An easy book with beautiful pictures in color to help you identify different trees.

Pryor, William C. and Helen S., *The Paper Book*. Uses of paper and how it is made.

Selsam, M. E., *Play with Trees*. How trees grow, their flowers, and how they differ.

Webber, Irma, *Thanks to Trees*. Importance and uses of trees.





# Joe Manygoats and His Sheep

UNIT 2





## Living in a Grazing Community

Some parts of the world have enough rain to grow great forests. Other parts of the world have very little rain. We call these dry regions deserts.

Do people live in the desert regions of the world? Yes, many people live in deserts and make their living by grazing animals. Joe Manygoats lives in a desert in our country. His family raises sheep. Every day Joe and his dog take the sheep out in the desert to look for grass. Find the map of the United States in your Atlas. Where does Joe live?

Ali lives in the largest desert in the world. It is in Africa. Find it on the world map in your Atlas. Ali's family also make their living by grazing animals.

The adventures of Joe and Ali who live in different desert regions should help you answer the question—Would I like to live in a grazing community in the desert?



### I WONDER

I wonder if I would like to have a camel for a pet.

I wonder if we use any products of the desert.

I wonder if some desert people make a living in other ways than by grazing animals.

I wonder what it would be like to live in a region where there is very little water.



### WORDS WE NEED TO KNOW

<i>ancestors</i>	<i>desert</i>	<i>nomads</i>	<i>reservation</i>
<i>canyon</i>	<i>flood</i>	<i>oasis</i>	<i>river bed</i>
<i>ceremony</i>	<i>greasewood</i>	<i>piñon</i>	<i>sagebrush</i>
<i>cloudburst</i>	<i>hogan</i>	<i>plateau</i>	<i>sand dunes</i>
<i>corral</i>	<i>loom</i>	<i>Pueblo</i>	<i>turban</i>
<i>current</i>	<i>Navaho</i>	<i>region</i>	<i>weave</i>





In the shade of a little piñon tree, Joe sat down to eat the corn bread his mother had given him for his lunch. He and the sheep were tired and sleepy, but Brownie, the dog, was wide awake.

## Joe's Summer Work

The sun was hot. Little waves of heat danced across the dry, sandy earth. Joe Manygoats looked around to see that none of his sheep or goats had strayed too far away in search of grass. Then he sat down on the ground.

Joe was tired. All morning he and the herd and his brown dog had wandered over the *desert*, looking for grass. The sheep were tired, too.

Even the dog, Brownie, was glad of a chance to rest. He slipped into the shade of the *sagebrush*, and lay there with his tongue out, panting loudly.

Joe Manygoats was a *Navaho* Indian boy, nine years old. He lived in a dry desert *region* in the southwestern part of the United States.

All summer long Joe took care of his family's goats and sheep. Early each morning, right after breakfast, he went to the sheep pen, or *corral*, behind his house. When he opened the gate, the sheep and the goats ran out, jumping and bleating and baaing.

Every morning Joe made sure that all the sheep and goats were there. Even though there were 400 animals in the herd, he knew each of them by sight. Then he whistled to Brownie, and they all started off to look for grass. They often had to walk a long way to find grass in this desert country.

This morning Joe had started from home very early. Now the sun high overhead told him that it was noon—



time to rest and eat. He sat down in the shade of a little *piñon* tree and ate the corn bread which his mother had given him that morning.

Most of the sheep had found a little shade under some bushes of *greasewood* and sagebrush and were resting, too. A few of them had strayed down into the *canyon* in search of grass.

### An Exciting Adventure

Joe stretched out on the ground and put his broad-brimmed hat over his eyes to keep out the sun. Only the brown dog was really wide awake. When Brownie was out with the sheep, he never closed his eyes.

This time it was his nose that told Brownie something was wrong. He smelled a *coyote*. A coyote is a wild animal that looks a little like a police dog. Every Navaho dog knows that a coyote is an enemy of sheep. Every Navaho boy knows that, too. But Joe was asleep!

Brownie's nose led him in the direction of the canyon. There he saw a coyote creeping up behind one of the lambs, ready to leap upon it and kill it.

The dog saw that the coyote was big enough to kill him, too. Brownie needed help quickly. So he barked loudly.

Joe was wide awake at once. He could tell by the way Brownie was bark-

Sometimes the Southwest desert has very heavy rains, called cloudbursts. Then the rushing water cuts through the dry plateau, digging new canyons and making the old ones deeper each time.











In a Navaho family, everyone has a share of the work to do. This little girl is carrying wood into the hogan for the cooking fire.

getting his faded brown shirt and blue jeans dusty, but he did not like to breathe the dust. It made his throat feel dry and his eyes sting.

Joe shaded his eyes and looked across the desert. He saw a high, flat land cut by many small canyons.

The high, flat land where Joe took care of his sheep is a *plateau*. That means "high, flat land." It is also a desert because little rain falls there.

Across the plateau to the north Joe could see mountains. They looked a hazy blue in the distance. To the south the plateau stretched for miles and miles.

Joe often wondered what the country was like far to the south. As far as he had gone, it was just like the land around his home—dry and sandy, with a few piñon trees. Almost the only shrubs he had ever seen were greasewood bushes and sagebrush. These bushes were able to live in the desert because they had very long roots that went deep into the ground for water.

### DO YOU KNOW?

1. What is a desert? A plateau?
2. What could Joe see from his desert home?
3. How did he spend every summer day?

### LEARNING BY DOING

Can you find other stories and pictures that tell about deserts?

### BEING A GOOD CITIZEN

How did Joe show that he could accept responsibility? What kinds of responsibilities do you have? Do you always do the things that you should as well as you can?

ing and jumping about that something was wrong. Then he saw the coyote. The coyote was very bold, and Brownie's barking did not frighten him. He was creeping closer and closer to the lamb.

Joe saw that there was no time to waste. He ran toward the canyon, yelling loudly. That was enough to frighten the coyote. He turned and ran away.

Joe put his arms around the dog and gave him a pat. Then he took a piece of corn bread out of his pocket.

"This is your reward for saving the lamb," said Joe. Brownie swallowed the corn bread in one gulp. Then he cocked his head as if to say, "Isn't there any more?"

Joe shook his head. "No more until supper. Now we must find more grass. Go get the sheep!" He whistled sharply.

Brownie bounded away to round up the sheep and start them off along the sandy trail. Joe walked at one side of the sheep to keep out of the cloud of dust that they raised. He did not mind



# A Navaho Home

Late in the afternoon Joe and the sheep reached home again. Joe was glad when his father's three black dogs came running and barking to greet them.

After the sheep were safely in the corral, Joe started for the *hogan*. That is what the Navahos call their houses. The hogan was nearly round. Its walls were made of logs, with mud plaster in the cracks. The roof of the hogan was made of logs covered with earth.

Joe pushed aside the blanket which hung across the doorway, and stepped inside. It took his eyes several minutes to get used to the darkness of the room. There were no windows in the hogan. The only light came from the door, and from the open fire on the dirt floor, and from a little hole in the roof where the smoke went curling upward.

All around inside the hogan were the

belongings of the Manygoats family. There were soft sheepskins that made good beds. There were blankets, too—some to sleep under and some to use as overcoats in cold weather.

Near one wall was a large wooden box. It contained the family's best clothes and silver jewelry. Behind the box was a bag of sheep's wool. Joe's mother would spin this wool into yarn when she had spare time.

On the other side of the hogan were some corn for food and a few pots and pans used for cooking. In many of the nooks and spaces between the logs, little packages were stored. Some of these contained threads and bits of wool. Others contained plants which Joe's father, Jim, had picked and dried to use as medicine. There were a few bird feathers stuck in the cracks of the logs.

In the winter, this Navaho family lives in a hogan made of logs completely covered with earth. Such a home is snug and warm in cold weather. How is it like Joe's home, shown on page 67? How is it different? Do you think it is easy to get logs for building homes in this desert region?

Ewing Galloway





As Joe came into the one room of the hogan, he sniffed. "M-m-m!" The mutton stew on the fire smelled good.

Joe told his mother about the narrow escape from the coyote. She was glad that Brownie had saved the lamb.

### Old Man Salt

As Joe's eyes became used to the dark, he could see his grandfather asleep on a sheepskin in the rear of the hogan. People called him Old Man Salt. His face was wrinkled with age, but his eyes were still bright. Joe always enjoyed listening to the tales of "the long, long ago" that Old Man Salt could tell.

Old Man Salt knew a lot about sheep and goats, and about horses, too. He had often explained to Joe how to take care of the sheep so that there would be plenty of mutton and wool. The spring before, he had given Joe six sheep for his very own. At that time Old Man Salt said to Joe: "If you take good care of these sheep, some day you will have a big flock of your own."

### The Water Supply

Joe and his mother sat around the fire without talking much, waiting for the stew to finish cooking. Suddenly the dogs began to bark. Joe pulled up a corner of the door blanket and looked out. He saw his father's wagon coming.

His father, his sister Isabelle, and his brother Tom had gone to the spring and had brought back three barrels of water.

Once each week Joe's father hitched up the team and went for water. He had to go to a spring eight miles away. The trip took nearly a whole day. With water so scarce, there was none to waste. Most of it was needed for drinking and cooking, but a little was left for washing.

Joe went out to help unload. By the time the water barrels were stored away, the stew was ready. Then the family gathered around the fire to eat supper.

Old Man Salt had slept right through all the barking and noise. Joe's mother called to him to hurry because all the food might soon be gone. At the end of the meal, the grandfather said a short prayer, a few words of thanks for the food they had eaten.

### Joe's Visit

After supper the sun was still shining. Joe strolled over to see his older sister, Lily, and her family. He wanted to tell them about the coyote and Brownie.

Lily's hogan was like her mother's, except that it was smaller. Only four people lived in it. They were Lily, her husband, George Grayeyes, and their two little boys, Frankie and John.

Joe liked to watch Lily's husband making jewelry. George had made a silver belt buckle for Joe. He also made bracelets and rings and buttons. Lily had many silver buttons sewed on her blouses. Sometimes George would trade his jewelry to other Navahos for something else. He often got two or three

Have you ever seen any Navaho jewelry? Here are a pin, a necklace, a belt ornament, and a bracelet.





sheep in exchange for one bracelet. He also traded his jewelry at the trading post.

As Joe told the story about the coyote, he noticed that Frankie was trying hard to stay awake. But Frankie could not keep from nodding. Baby John was sound asleep on his cradleboard, which was leaning against the wall of the hogan. His mother had placed him on the board and then wrapped his blanket about him. He was firmly fastened so that he could not fall off. Joe thought this was a good way to keep a baby safe.

#### DO YOU KNOW?

1. What is a Navaho house, or hogan, like?
2. What belongings do the Manygoats family have?

3. How did Old Man Salt help Joe?
4. How did the family get their water?
5. What does George Grayeyes do?
6. How are Navaho babies kept safe?

#### LEARNING BY DOING

Would you like to make a desert scene in a box? The hogan can be made of clay or soil. The family can be modeled of clay or cut from paper. How can you make the animals and the wagon? Can you show a few plants and a baby on a cradleboard?

#### BEING A GOOD CITIZEN

Joe listened to Old Man Salt and learned many things from him. What have older people told you that helped you? How do you think they learned so much? Think of things you would like to ask some older person and then find out when that person can talk with you.

## The Corn Harvest

George Grayeyes had gone over to one of the cornfields that morning to see whether the corn was ripe. "It will be ready to pick in about a week," he said.

Joe's father and George each had a small cornfield on the plateau not far from their hogans. Jim had another field, too, down in the canyon which ran along the east side of the plateau. Old Man Salt had been the first to use this canyon field. Now that he was too old to work any more, Jim took care of it. George helped him, and so did Joe and Tom.

Next year George was going to plant a field of his own in the canyon. The men of the family would all work together to help him start the field. It was a good thing to have a field in the canyon because there was more moisture

in the ground down there. Some years there was so little rain on the plateau that corn would not grow there. But the ground in the canyon was always moist enough to grow corn.

#### Down the Canyon Trail

One day about a week later there was much hurrying about at the Manygoats' camp. The family was getting ready to go down into the canyon for the corn harvest. They did not take much—just some blankets, some food, and a few pots and pans. These were loaded upon the wagon, and then the whole family climbed in. The dogs went, too. Some of them rode, but the others ran along beside the wagon.

Joe's father drove the wagon along the dusty trail to the edge of the canyon.



There they loaded all their goods on the backs of the two horses and started down the trail. It was a steep trail, which wound back and forth across and around the red rocks of the canyon wall. Joe looked down at the fields stretched out on the wide floor of the canyon. These fields were golden brown, because the corn was ready for harvest.

Winding along among the fields was the dry bed of a river. There was seldom any water in this *river bed*. After a very heavy rainstorm, or a *cloudburst*, this river flowed for a few hours. For a short time the stream of water ran very fast, fast enough to carry along small shrubs and branches of trees. The Navahos were careful never to get caught in the river bed during a big rainstorm.

Joe always looked forward to the corn harvest. There was much work to do, but there was also plenty to eat—plenty of fresh, new corn. And there were always many people to see and to talk with. Two sisters of his mother had

fields in this same part of the canyon. These two aunts and their families lived on the plateau, too, but Joe saw them only at special times, such as corn harvesting.

The walk down the trail from the plateau to the bottom of the canyon took almost an hour. Long before the Many-goats reached the bottom, they could see several families already at work.

Joe was quick and sure-footed making his way down the trail. He reached the bottom of the canyon before the rest of the family, so he started to walk along the dry river bed. It had been several months since Joe had been in the canyon, and he wanted to go exploring. Brownie followed at Joe's heels.

### The Flood

Suddenly the dog ran a few steps ahead, stopped, and pricked up his ears. Joe stopped also, wondering what Brownie heard. He listened. At first the sound was like wagon wheels rum-

When traveling long distances, most Navahos go by horse and wagon. The cloth stretched over the top of the wagon shades them from the sun as they travel over the hot desert.







Joe's warning to his family came just in time. The flood of foaming, muddy water was not far away as they turned to run for safety. They had to find a place where they could scramble up the wall of the canyon.

bling along a road. But it gradually grew louder and louder, until it sounded like faraway thunder. Joe knew then what it was. Even though the sun was shining here, there had been a cloud-burst some place up the canyon. The rainstorm had filled the dry river bed, and a *flood* of water was rushing down the canyon.

From the loud roar, Joe knew that there must be a big wall of water coming. If it were very high and swift, it would rush over the bank and flood the corn-field. It would surely carry off anything caught in the river bed.

Joe thought of his family and the loaded horses. He ran back as fast as his legs could carry him to warn them of danger. He ran very fast, but the

noise became louder as the flood came nearer. It sounded as if the water were already right behind him.

The river bed wound around so much that Joe could see only a few yards ahead. But finally he turned a bend and saw his family. He shouted and waved his arms and pointed up the river. They knew at once what he meant. When they stopped to listen, they too could hear the rushing water.

Quickly they looked for a safe place. At that spot the banks of the river bed were high and steep. The family had to turn and go back to a place where they could climb up the bank, driving the horses ahead of them.

They were not a minute too soon. Just as the last one reached the top of





Picking corn by hand is hard work. Do you know how it is picked on large farms today?

the bank, a roaring wall of foaming, muddy water came rushing round the bend. It was broad and high, running furiously. Many shrubs and branches had already been caught in its swift *current*. As they whirled past, Joe was glad that he and his family had scrambled out in time.

The flood lasted for several hours. It was a bad one, but not high enough to go over the bank and flood the cornfield.

### Picking the Corn

By the time the Manygoats were able to reach their field on the other side of the river, it was too late to start work that day. They unloaded the horses and put their things in a log shelter which Old Man Salt had built many years ago. Because they stayed here only a few days each year, they did not need a regular hogan like the one on the plateau.

In a short time Joe's mother had a fire going and the supper cooking. They ate an early supper so that they could get a long sleep before starting to pick corn the next day. The first day they would all work in the field belonging to one of Joe's aunts. When all her corn had been picked, everyone would help in the Manygoats' field.

There was a great deal of corn to pick this year, and between the rows of corn there were many ripe, yellow squashes. It was a fine big crop. They had had rain at just the right times—once when the corn had first come up, and again when it was almost ripe. A big crop meant more work, but it also meant that they would have plenty to eat during the winter and next spring, too. This corn would have to last until the harvesting of next year's crop.

All day long they picked the ears of corn. In the evening the women husked part of the corn, pulling off the husks and tossing the ears onto a pile. After two days there was a big pile of many colors. Some of the corn was yellow, some was red, and some was blue. There was also some green corn which was just right for eating.

Joe told his cousins that he dreamed about corn at night. "I have seen so much of it," he said, "that I know I am going to wake up some morning and find I have turned into a cornstalk."

By the fourth day all the corn in the two fields had been picked. Some of it was stored in a cellar near the field. This cellar was almost as deep as a man is tall. Its floor and sides were covered with bark from cedar trees to keep it



dry. After the cellar was filled with ears of corn, the top was covered tightly with more cedar bark and then with dirt and rocks. The corn was now protected from animal thieves.

The rest of the corn was put into big burlap sacks. These were loaded upon the horses and the aunts' mules. Joe was too small to help with the loading, but he could ride on top of the sacks on one horse and lead the other.

The path seemed even steeper going up than it had been coming down. The horse Joe rode was very sure-footed. He picked his way carefully along the rocky trail. When the Manygoats reached the plateau, they put the sacks on the wagon and drove back to their hogan.

The first thing they did when they got home was to pack their corn away in an underground storeroom. They were glad to have the storeroom full, because it would be a long time until another harvest. The squashes were stored along the back wall of the hogan. There were enough of them to last the family until the middle of winter.

All the Navaho families on this plateau grew corn and squashes. But none of them really owned the land which they farmed. All this region was part of an Indian *reservation*. That means that it had been set aside, or reserved, for the Indians. Each family was welcome to settle anywhere on the reservation it pleased, if no other family was using the land it wanted. The Indians could leave their fields any time they wanted to and go in search of better land. But if they continued to use a field year after year, no one could take it away from them.



After ears of corn are picked, the husks must be pulled off before the corn can be used for food.

### DO YOU KNOW?

1. Why did the Manygoats family plant corn so far from their home?
2. How did they harvest their corn?
3. Why did Joe like the corn harvest?
4. What is a flood like? How can a cloud-burst cause a flood?
5. How did Joe save his family from the flood?
6. How did the families help one another?
7. How did they care for their corn for winter? For their squashes?
8. Why don't these families own their farms? What is an Indian reservation?

### LEARNING BY DOING

Make a list of foods that are made of corn or have corn in them. You may want to look in stores and on your shelves at home. Your mother can help you, also.

### BEING A GOOD CITIZEN

Joe showed that he could think and act quickly in time of danger. Do you know people who have been brave and who have helped others when they were in danger?





On the way to the trading post, these sheep are driven past another kind of Navaho hogán. The walls of this one are made of flat stones, piled one on top of another. The branch-covered shelter at the left is used by the women for cooking, washing, and other work.

## At the Trading Post

One day a few weeks later, Joe's father and Tom got up early in the morning, before the sun was up. They went to the corral and let out the sheep and lambs. Then with the three black dogs to drive the sheep before them, they started off to the store where they always did their buying and selling.

A little later Joe and his mother and Isabelle set out for the store in the wagon. The wind blew sand into their eyes and mouths. It filled the wagon ruts with sand until the road was almost covered.

For Joe, a trip to the store was always exciting. His family did not need to go there often, because they raised most of their own food.

The road to the store wound across the plateau toward the foot of the mountain. Then it passed the head of a small canyon, where the store and the storekeeper's house stood.

In the canyon a little creek flowed steadily from a spring in the mountain-

side. Some tall cottonwood trees grew along the creek. They stood tall beside the store and the house. They made more shade than could be found anywhere else for miles around.

Not far away was the little schoolhouse to which Tom went. Joe would go there to school, too, in a year or two.

### Trading the Lambs

By the time that Joe, his mother, and Isabelle reached the store, the father and Tom had already arrived. They were driving the sheep into a big corral. Then the whole family helped to sort out the lambs which they wanted to sell. There were forty of these lambs.

Joe went inside the store. This was the only place where Joe ever heard English spoken. The Manygoats, like most Navahos, spoke only their own language. The storekeeper was a white man who spoke both Navaho and English. He and his family were the only white people Joe had ever known.



While his parents talked with the grownups, Joe wandered over to the showcases and counters and began looking at what there was to buy. He saw everything from candy bars to saddles.

Joe wondered what his family would buy this trip. They should be able to get many things, because it seemed to Joe that forty lambs must be worth a great deal of money. Of course the storekeeper would not pay them in cash for the lambs. Instead, he would allow them to pick out things they wanted, which he would trade for the lambs.

Other Navahos also brought to this store some of the things they raised, such as wool and corn; some of the things they picked, such as piñon nuts; and some of the things they made, such as rugs, jewelry, and moccasins. In exchange they took back flour, coffee, cloth, and tools, and sometimes canned foods, such as tomatoes and pears.

### The Wonderful Knife

Suddenly Joe stopped. There in a showcase was the most wonderful knife

he had ever seen. It had a shiny black handle and three blades. How he wished he could have such a knife! But he knew that they could not afford it this time. After buying the things they needed, there would be nothing left to get a knife for Joe. But sometime he might be able to buy it.

Everyone in the Manygoats family, children and all, had his own sheep. When there were any lambs or wool to be sold, most of the money had to be spent for things the whole family needed, such as flour and sugar. Then, if there was any money left over, each one could buy something for himself.

Joe thought of the six sheep that Old Man Salt had given him last spring. He decided that if he had a good sack of wool next spring, he would trade it in and use part of that money for the knife.

Later in the day, as the wagon wound along the road on the way home, Joe kept thinking. He thought about the knife and about his six sheep. Then he thought about the grass and how his sheep and the rest of the flock had to

This whole Navaho family has taken the day off for a trip to the trading post. Some rode in the wagon, others on horseback. The large bag in the right-hand corner is full of wool. They will trade it for the things they need. Notice the rocks on top of the trading post. They keep the metal roof from blowing away in a high wind.







The road to Joe's home is only a dusty track in the hot, sun-baked desert.

walk for miles to find enough to eat. There was never much rain in the desert; so the grass was always thin. Everywhere he looked, Joe could see more bare ground than grass.

He hoped that there would be some long, gentle snowstorms that winter. Then plenty of moisture would be stored up in the ground to help the grass grow thicker next summer. The underground water would also help fill up the springs and make pools in the hollow places in the rocks. Then Joe could water the sheep near home instead of driving them all the way to the creek.

The wagon finally came to a place in the road where there were several huge, bare, reddish boulders. Here the Many-goats turned into an even narrower road, which led to their home. They had not seen any people or any houses since leaving the store.

Families lived far apart so that there would be room for the sheep to graze. Their camps were always set back from the main road. The only sign that a camp was near was the distant barking of dogs or a column of smoke curling over the top of a hill.

#### DO YOU KNOW?

1. What did Joe see on his way to the store?
2. How did the storekeeper pay for the lambs?
3. What did other Navahos have to sell?
4. What did Joe think about on his trip home?

#### LEARNING BY DOING

Make a picture of Joe at the trading post. Show other Navahos with the things they have to sell and some of the things they buy.

#### BEING A GOOD CITIZEN

Joe waited without complaining for the knife he wanted so much. Are you willing to wait for things you want? Do you complain?



# Visitors at the Manygoats' Hogan

One afternoon a few days later, as Joe and Tom were coming home with the sheep, they noticed two horses tied to a post in front of the hogan.

"Those are Uncle Littleman's horses!" said Joe. He knew most of the horses for miles around.

His uncle was called Littleman because he was so short. He raised cattle at a place about thirty miles to the south. The Manygoats did not see him often, and so the boys wondered why he was here and who had come with him.

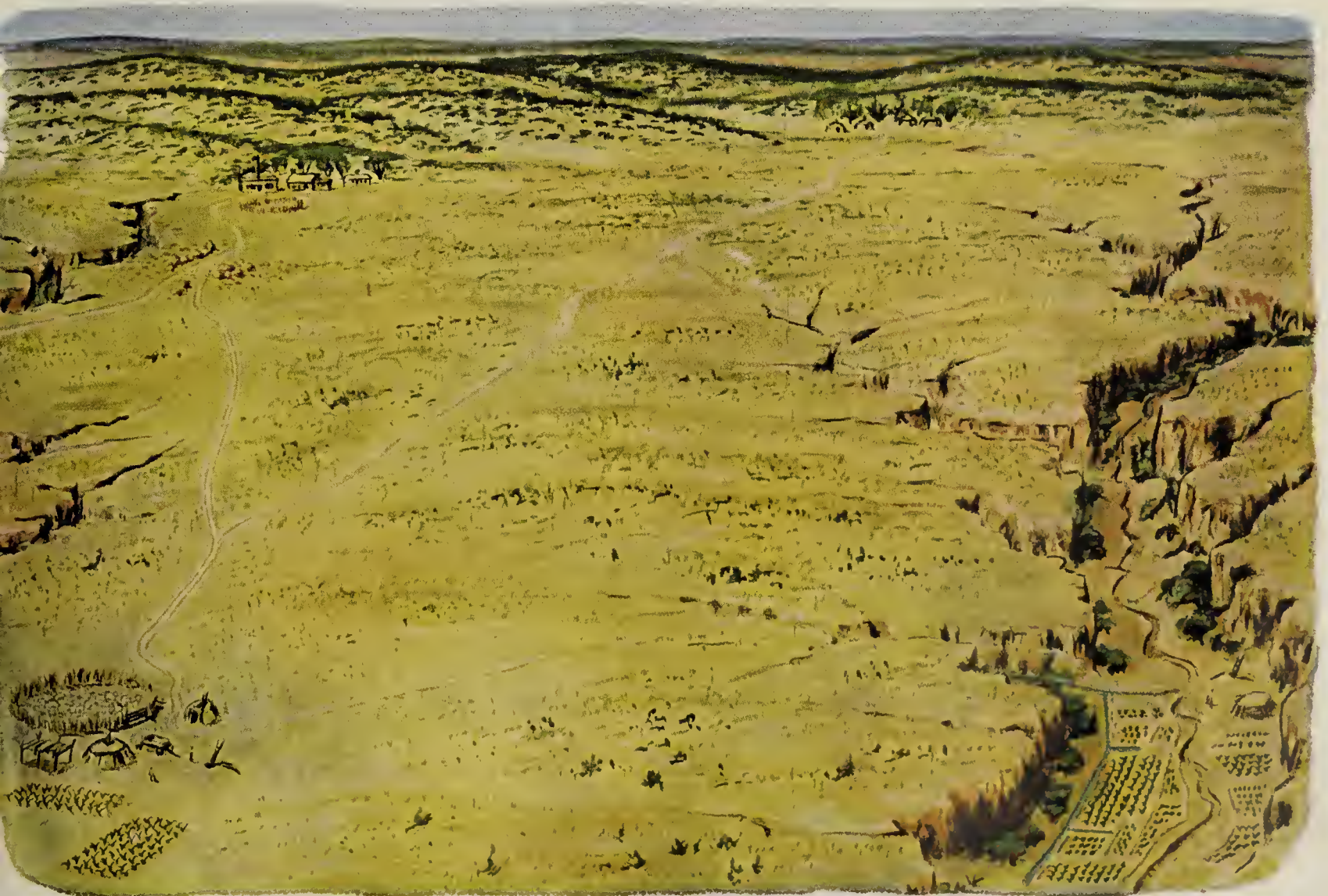
After putting the sheep in the corral,

they went into the hogan. Uncle Littleman and his son were there. The boys shook hands with them and sat down.

Littleman had brought them a large sack of peaches. He knew the boys would enjoy the sweet, juicy fruit. There were many peach trees in a canyon near his hogan. He said that there had been many peaches on the trees but their corn crop had been poor this year.

Joe's father told of their fine crop and their full storehouse. "You must not go home without taking some corn for you and your family," he said to Littleman.

This picture shows you where Joe Manygoats lives. Does it rain much here? Notice the deep canyons in the flat land. Why are cornfields planted in the canyon? See the corrals. What are they used for? Are the summer or the winter hogans closer to the mountains? Does Joe have a chance to go to school?





## The Latest News

After supper, Littleman told them the news. His most exciting story was about an automobile trip to the city of Gallup. He had gone with a storekeeper who lived near him. Littleman told the Manygoats about the big stores, the many automobiles, and the electric lights in Gallup.

None of the Manygoats had ever been to a city or ridden in an automobile. They were eager to hear everything Littleman could tell them.

Littleman also gave them news about the people in his part of the country. He told them who had died and who had married and who had had new babies. Most of these people were relatives of the Manygoats. So they were glad to hear the latest news about them. This was the only way that news traveled among these people. There were no telephones or newspapers.

Littleman talked of different people and of different places. He spoke of how thin the grass was. Every year it got worse, he said.

Old Man Salt spoke up: "It was dif-

ferent when I was a boy. Then the grass was so high that it came up to the sheep's bellies, and even to their backs. There was plenty of good pasture.

"But the herds grew larger and larger, and the sheep ate the grass faster than it could grow. Now there is hardly enough grass to keep the sheep from going hungry."

## Long-Ago Times

Back in earlier times—long, long before Old Man Salt's days—his Navaho *ancestors* had had no sheep. If Joe Manygoats had lived 500 years ago, there would not have been any sheep for him to herd. Instead, he would have learned to hunt wild animals with a bow and arrow. Instead of stew made of mutton, he would have eaten deer meat.

In those long-past times, Joe would not have gone to the canyon for a corn harvest. Instead, he would have gathered many wild nuts and berries growing on trees and bushes.

For many, many years, Joe's Navaho ancestors continued to hunt wild animals and to gather wild plants for their food. Later, they learned to plant corn and

The early Spanish explorers in the Southwest desert brought their own food, by driving herds of sheep and cattle on the long trip. These were the first sheep the Navahos had ever seen.





squashes. The Indians who taught the Navahos about farming are today called the *Pueblo* Indians.

All this happened before there were any white men in North America. It was fifty years after Columbus discovered America before any white men set foot in the region now known as Arizona and New Mexico. The first explorers from Spain arrived around 1539. Soon afterward the Spaniards started settlements there. They brought with them horses, sheep, and cattle. After a time the Pueblo Indians and the Navahos began to herd sheep also. They found the sheep to be very useful animals.

Gradually, changes came in the ways of living among these Indians. This is why Joe Manygoats was living a very different life from that of his ancestors. Even though he did live in the same country in which the Navahos have lived for hundreds of years, the ways of living had improved.

### Signs of Fall

Every year Littleman visited the Manygoats about the same time. In the summer he kept his cattle on the side of the mountain, where the grass was thick and green. They stayed there all summer without being watched.

In the fall, Littleman would drive his cattle down into a warm canyon where there was only a little snow during the winter. Here the cattle could find plenty to eat. They would have starved on the mountainside, where deep snows cover the grass in winter.

Littleman's visit was one sign that fall was ending and that winter would soon

come. Another sign was the ripening nuts on the piñon trees. These scrubby, sturdy trees began dropping their nuts in late fall. Some years the Manygoats family had to go a long way to pick as many of these nuts as they wanted.

Some of them they sold at the store, and some they kept to eat during the winter. This year they heard that the crop of piñon nuts was small, so it was not worth while going far to gather them. Instead, they picked the nuts from the trees nearby. They needed sharp eyes to see the tiny brown nuts lying among the pine needles on the brownish ground. The sheep ate any that the Indians did not find.

### DO YOU KNOW?

1. Why were the Manygoats so glad to see Littleman? What news did he bring?
2. In what ways did Littleman and the Manygoats help one another?
3. How did Joe's Navaho ancestors live? How would Joe's life have been different if he had lived in those early days?
4. Who first taught the Navahos to farm?
5. How did the Spaniards help these people change their ways of living?
6. How was Littleman's life different from the lives of the Manygoats?
7. What were some signs of fall in Joe's desert? What are some signs of fall in the region where you live?
8. How did Joe's family use piñon nuts? What kind of nuts does your family use?

### LEARNING BY DOING

Choose people to play parts of this story. Littleman and Old Man Salt will have interesting stories to tell.

### BEING A GOOD CITIZEN

The Manygoats and Littleman shared what they had. What do you share with others? What do others share with you?



# Getting Ready for Winter

Every year, just before winter came, the Manygoats moved their camp. The hogan they lived in during the summer was fine for warm weather. It was out in the open where breezes kept it cool. But it was too cold in winter. So at the first sign of cold weather, they moved.

The winter hogan was near one of the mountains to the north. The mountain cut off the winds, and less snow fell there than out in the open. This hogan was near a spring, and the family would not have to go far for water. Of course, they could get some of their water in winter by melting snow and ice, but not enough to take care of all they needed.

## Moving Time

When the time came to move, the Manygoats piled most of their belongings on the wagon. They took their blankets and sheepskins, their pots and pans and kettles, and their strong wooden box. Then they were ready for the journey to their winter hogan. George Grayeyes and Lily and their children moved into a nearby hogan.

Joe's father and George had already spent a day repairing the hogans. They made sure that all the logs were firmly in place and that there was enough mud plaster in the cracks to keep out the winter snow. They also mended the corral fence so that the sheep would be kept in and the coyotes would be kept out. They moved their herd of horses, too.

The horses were not kept in a corral like the sheep. They were allowed to

wander around, but they never went very far away. When the Manygoats moved, Tom rounded up all the horses and drove them over to the mountain near the winter hogan.

Most of the other Navahos also moved into winter quarters. In this way, everyone had new pasture for his sheep. In the summer the sheep grazed out on the open plateau. But in winter they stayed close to the foot of the mountain, where there was less snow to cover the grass.

Some families had more than two hogans. If the pasture around one hogan was good enough to last all summer, they would stay there. Otherwise, they might move to another hogan in the middle of the summer, in order to get new pasture.

The Navahos did not move so often as their ancestors of long ago. Now the Navahos moved their camps only to find grass for their sheep. They did not need to wander far and wide hunting wild animals for food.

## Thanksgiving Preparations

Soon after the Manygoats had moved to their winter hogan, they began to get things ready for their *ceremony* of thanksgiving and blessing. They would be led by a special singer who knew the prayers and songs that were part of the ceremony. Joe's aunt, Gray Woman, and her husband had asked this singer to come. He lived far away, but everyone knew him.

The singer would ask for a blessing upon Joe's aunt and her family and upon



all their sheep and horses and other possessions. The Navahos believed that if they took some time for a ceremony, it would protect them. They and their sheep would always be safe from harm, and they themselves would have good fortune.

Many people who lived on the plateau would come and spend the night and day during which the ceremony lasted. Gray Woman and her family would have to feed all these visitors.

So the Manygoats offered to help provide the food. They said they would butcher a sheep and would also make some bread. Lily and George Grayeyes said they would bring some fine squashes. Joe's other aunt said that she would bring some food, too, and she would give something to help pay the singer. Tom

chopped wood for the cooking fires and hauled water from the spring. All the relatives were helping one another again, just as they had worked together at the corn harvest.

Early in the morning on the day the ceremony was to begin, the Manygoats family started to get ready. They washed their hair and put on their best clothes.

Isabelle and her mother wore their hair the same way—in a double loop at the back of the neck, held in place by some white cord. The men held their hair in place with handkerchiefs tied around their heads.

Their best clothes were just like their everyday clothes, but newer. Joe's mother wore a new red skirt. It was wide and long and looked well with her

At some Navaho ceremonies, a sand painting is made on the floor of the hogan. First a background of light-colored sand is sprinkled on the floor. Then the men sift sand of various colors through their fingers, to make sacred designs. After the ceremony is over, the sand painting is destroyed.







From far and near the guests came for the thanksgiving ceremony. They were all dressed in their best clothes. Notice the fine blankets and jewelry that the two women are wearing. The man at the left has his long hair tied up with a white cord.

green velvet blouse. She had bought the blouse and skirt at the trading post. On her collar and sleeves there were many silver buttons, which had been made for her by George Grayeyes. She opened the wooden storage box and took out all her jewelry. She had some fine silver bracelets and some rings with *turquoise* \* set in them.

Isabelle was dressed just like her mother, except that she did not have much jewelry.

Joe's father wore his new blue jeans and a red flannel shirt. He had a bright yellow handkerchief tied around his head. Joe's shirt and blue jeans were as clean as could be. Tom had two big, blue handkerchiefs, and so he let Joe wear one of them.

Lily went to her aunt's early in the morning to help prepare the food. She and Gray Woman's daughters were busy nearly all day making bread and preparing the meat. They had a good time as they worked. They did not often get to spend a whole day together this way. So they joked and laughed and gossiped. The rest of the Manygoats family arrived late in the afternoon. Soon the other In-

dian families began coming to the ceremony.

### Arrival of the Guests

All afternoon people arrived at Gray Woman's hogan. She had two hogans close together. One was used as a kitchen, and the women spent most of their time in it, preparing the food. The other hogan was to be used for the ceremony. The singer was already there, and he and the other men sat in the larger hogan, talking and joking.

Joe and the other children moved about as they pleased. For a while Joe sat in the kitchen hogan, enjoying the delicious odors of the cooking. Sometimes he slipped out with a sample to eat. Then he would join his father in the other hogan and listen for a while to the men talking.

The singer did most of the talking. His name was Left-Handed, and he was a tall, slim man with gray in his hair. Because he came from a place about forty miles away, he brought news of many people who were unknown to the Manygoats. Left-Handed traveled about a good deal and led ceremonies for dozens of families. In this way he saw many people and carried news from

\* *turquoise*, a blue stone used in making jewelry. See the picture on page 74.



one camp to another. Everyone enjoyed listening to him, for he was very wise.

### The Ceremony

In the evening the ceremony began. Many of the women had come in from the kitchen hogan. They sat on one side of the room, and the men sat on the other.

Left-Handed had a rattle made of a dried gourd. It contained seeds that made a noise when he shook it. He shook the rattle slowly several times; then he began to rattle it in a regular rhythm and to sing.

One by one the men joined in the singing. Their voices were strong, and the singing filled the hogan. They sang on and on. They sang all through the night, pausing only twice to eat the food that the women brought in. One song went like this:

*Great Spirit,  
Your offering I make.  
I have prepared a smoke for you.  
Restore my feet for me.  
Restore my legs for me.  
Restore my body for me.  
Restore my mind for me.  
Restore my voice for me.  
Happily may I walk.  
Happily may I walk.*

Other songs asked for blessings and protection for all the things the Navahos loved and needed—for their children, their sheep, the hogan, and the corn.

Joe was not old enough to sing with the men, but he knew most of the songs by heart. Before many years went by, he would be able to sing with the men. He would not have to spend part of his time with the women in the kitchen.

The singer shook the gourd and sang songs for the ceremony. One by one, the other men joined in the singing. The songs were the same as the Navaho people had sung for many years, asking the Great Spirit for blessing and protection.





### DO YOU KNOW?

1. Why did the Manygoats move every spring and fall? What did they take with them?
2. How were the hogans repaired? Why did some families have more than two hogans?
3. In what ways was the Navaho Thanksgiving like ours? How was it different?
4. What foods did the women prepare? What does your family like for Thanksgiving?
5. How did the members of Joe's family look in their best clothes?
6. How do you think Left-Handed got his name? Why did people like to listen to him talk?
7. How long did the ceremony last? Why couldn't Joe sing with the men? What part did the women have in the ceremonies?

8. How do you suppose the Navahos learned their Thanksgiving songs?

### LEARNING BY DOING

1. You might like to make a mural showing the desert as it looks near Joe's summer home. Draw the hogan, some sagebrush, and a little grass. Show the animals and the people dressed in their best clothes.
2. Try to make up some music for the song that is in the book.
3. Write a Thanksgiving song of your own.
4. Find some songs that we sing on Thanksgiving Day.

### BEING A GOOD CITIZEN

What do you have to be thankful for? How can you show your family and friends that you are thankful for what they do for you?

## Winter in the Desert

Winter seemed to come more slowly than usual in the Navaho country this year. Joe was glad of this. He could drive the sheep a long way for grass without having to watch the sky for signs of snow. But it was growing colder all the time. Joe had to button his sweater and turn the collar up around his ears as he walked along.

### Weaving Rugs

The Manygoats spent more time indoors now. Joe's mother set up her *loom* and began to *weave* a rug. She was weaving it from wool they had sheared from their sheep the spring before.

Every Navaho woman knew how to weave. Joe's mother helped support her family by weaving and selling rugs. She put a great deal of work and time and skill into this job. Isabelle helped her with it.

After the wool had been sheared from the sheep's backs, it had to be combed. This cleaned out the dirt and burrs and straightened the fibers. Then the wool had to be spun into a long thread, thin but strong. There was much work to all this, but a girl's hands grew strong while she learned to handle the wool.

After the thread had been spun, it was still not ready for weaving. First it had to be dyed. Many Navaho women dyed their wool with colors obtained from plants and shrubs that grew in the desert. One of Joe's aunts was an expert with these plant dyes. She knew which plants made the best dyes, and which time of year to pick each one to get a certain color. Isabelle was learning all this from her aunt.

While she was cleaning and spinning the wool, Joe's mother was thinking of the rug she would weave. She was plan-



ning its pattern. It would have a white background covered with red, yellow, and blue designs. She could see exactly how each part would look, even before she started weaving. It was to be a large rug. It might take all winter to finish it, because she could work on it only in her spare time.

### The First Snow

When the first snow came to the plateau, Joe was sound asleep in the hogan. During the night several inches of snow fell. When Joe went outside in the morning, there was wet snow clinging to every twig and pine needle.

All that day and night the snow continued to fall. In the open places the drifts were deep. But back against the mountain, where the Manygoats' hogan stood, the snow was not yet deep. The

sheep could still move about and find some food.

Then the snow piled up so high that the sheep could hardly get through it. Joe and his family began to worry. To find food for 400 sheep was not easy. The Manygoats beat the snow off the bushes so that the sheep could get at the leaves. They decided that if more snow fell during the night, they would have to move the animals. They would drive them into one of the lower, warmer canyons to save them from starvation and freezing.

That night it grew very cold. The temperature dropped below zero. The Manygoats were up all night taking care of their sheep. They brought some of the thinnest and weakest sheep inside the warm hogan to keep them from freezing.

Isabelle is spinning wool. She pulls a piece of wool out and twists it into a long, strong thread. Then she winds it on her spindle. Her mother has begun to weave a rug on her loom. The balls of colored yarn will be used to make the design.





Joe was worried about one of the sheep his grandfather had given him. This animal had been weak and thin since hurting its leg a month before. Joe found it shivering against a tree and carried it into the warm hogan. He put a blanket around it and kept it near the fire.

He soon fell asleep beside his sheep. He was worn out from working in the snow all day.

When Joe woke, it was almost daylight. "How is my sheep?" he asked.

His mother was putting some coffee on the fire to boil. "It was a bad night," she said. "Four of the sheep died, in spite of everything we could do. One of them was yours, Joe."

"We must move the herd," Joe's father said. "This is the worst snowstorm in many years."

### Moving the Herd

Old Man Salt went out into the snow and made a prayer that the sheep might be saved. Then everyone got to work. Moving the herd was a job for the whole family. Joe's father and Tom went ahead with shovels to clear a way through the snow drifts. Lily and George Grayeyes helped drive the sheep.

They had a hard time to keep the herd moving. The sheep were wet and cold and they bleated unhappily. A hard crust had formed on the snow. When

While Joe's father and brother clear a path with shovels, the rest of the family try hard to keep the sheep moving. Joe is carrying a young sheep that is too weak to walk through the deep snow.





the sheep got off the path and broke through into the soft snow, they became frightened and would not go on. The family urged the sheep on. They feared that the weaker animals would die before they reached shelter in the canyon.

By night they had traveled several miles and had come to a little gully where there was less snow. They drove the sheep into the gully for shelter. Then they spent the night gathered around a campfire.

They drove the sheep all through the next day. Finally, in the evening, they reached the big canyon. Everyone was tired, and the sheep could scarcely walk. But they were safe now. Not much

snow had fallen at the bottom of this canyon. There was plenty of grass and bushes for the sheep to feed on. In a week or two they would be strong again.

The rest of the family went back home, but the father stayed in the canyon with the sheep. Every day George Grayeyes took food to him.

After the storm had ended and the snow had partly melted, the men brought the herd home. More snow fell from time to time. But there was never so much that the sheep could not find something to eat in the sheltered places near the hogan.

The hogan was warm and comfortable, and the family spent most of their time







Sometimes the lambs are born before all the snow is gone. Then Joe takes his new lambs into the hogan to keep them warm.

inside. They saw even fewer people than in the summer. But sometimes a neighbor passing by on horseback stopped for a visit and something warm to eat.

### The New Lambs

One of the busiest times at the Manygoats' camp came when the lambs were born. This year the snow was all gone and there were signs of spring when the lambs came. The Manygoats were glad of that. Now there would be no danger that the little lambs would freeze.

Day after day the family were kept busy taking care of the lambs. They were so weak and tiny that they seemed more like toys than live animals.

There were many lambs this year, and that made everyone happy. Old Man Salt said, "That is the way it should

be. When there are many lambs, there will be plenty of meat and wool for the coming year."

Joe was the happiest of all. One of his sheep had given birth to twin lambs. It was fine to have one lamb, but it was twice as good to have twins. The twin lambs were tiny and not very strong. But Joe and his mother watched them carefully, and they grew bigger and stronger. As he counted his sheep and lambs, Joe said to himself, "By the time I am a man, I shall have a big herd."

Every member of the Manygoats family had a special way of marking his own sheep to tell them from the others. The sheep which belonged to Joe's mother had a little notch cut in the left ear. His father's sheep were marked with notches in the right ear. Joe's sheep had notches in both ears. These marks were their brands. The Manygoats had to mark the lambs to be able to tell who owned them.

### DO YOU KNOW?

1. How does Joe's mother make a rug?
2. How did the family spend the night of the first deep snow?
3. Why was moving the herd a hard job? How did everyone help?
4. How did Joe take good care of his new lambs?

### LEARNING BY DOING

1. Try to draw some pretty designs for rugs.
2. Can you find some leaves, berries, or roots of plants that would make good dyes?

### BEING A GOOD CITIZEN

Have you ever taken care of animals that were weak and not able to care for themselves? Have you helped children who were not as strong as you?



# Spring Planting

As spring came, the days began to grow longer. The cottonwoods near the creek started to bud. Soon it would be time to prepare the canyon fields for planting. Spring came early down in the canyon. The ground there was ready for planting sooner than it was on the plateau.

Word went around among the camps on the plateau that in three days all the men would go down into the canyon. It was time to repair the *irrigation ditch* that watered the fields there. This ditch carried water from a spring in the canyon wall to the cornfields in the canyon.

This spring bubbled out from among the red rocks. It ran all summer and furnished enough water to keep the crops green. The ground near the spring was always damp.

Every year, before the fields were planted, the men had to clean the irrigation ditch. The leaves and branches and

dirt that had fallen into the ditch had to be removed, and the walls of the ditch had to be repaired. After the ditch was cleaned, the men repaired the fences surrounding the fields. The fences were there to keep out the horses and sheep grazing in the canyon.

## Farming on the Plateau

After everything was ready for planting in the canyon, it was time to prepare the fields on the plateau. Since these fields were small, the men of each camp worked only on their own fields. Joe went with his father and Tom to help with the work. That was the way he learned about farming.

At night, after the day's work was done, the father talked to his sons about their cornfields. "You must be strong, and you must work hard, to raise a good crop," he said. "A lazy farmer never has enough to feed his family."

Navaho farmers irrigate their cornfields one row at a time. They make an opening in the dirt wall so that water can flow in from the irrigation ditch. When one row is full of water, they dam that part of the wall up again, and open the next row. What is the other man in the picture doing?





"You must choose your seed corn carefully. Choose healthy ears, like these that I saved from last year's harvest. They all came from stalks that were free from insects and corn diseases."

Then he taught Joe and Tom the songs that a man sings when he plants and when he harvests. "These songs help the seed and the ripening corn," he told them.

Joe and Tom had heard all these things before, but they listened to their father's advice carefully. They knew he was a good farmer. Joe listened more carefully this year than ever before. He knew that he too would soon be helping in the fields.

In a year or two, Joe would go to school, like his brother Tom. There he would learn to read and write. He would study from books. But first he was learning from his family how to care for his sheep and how to raise good corn.

Joe's father told them how they could know when it was time to plant the corn. "Watch the stars," he said. "When cer-

tain stars are in the west, then the corn can be planted and it will grow."

That time had already come. So word went around among the people on the plateau that in two days they should all go into the canyon to plant the corn.

### Back to the Canyon

All the families went to the fields again for the planting. They worked on one field at a time. When that was finished, they went on to the next one. They said the work seemed to go faster when they all worked together.

When it was noon, they usually stopped wherever they were. The women of the family that owned that field fed them all. Sometimes they worked so hard that they did not stop at noon. They worked straight through the day.

They planted the corn in long rows. A man went first in each row, working with a digging stick. This stick was a branch of greasewood bush, with a sharp point at one end. The man pressed the stick down until the sharp point reached the damp earth under the dry soil on top. Then the man's wife dropped the corn seed into this hole, and placed some earth on top of it, making a little hill. In this way they all worked together until the whole field was planted.

Between the hills of corn they planted squash seeds. Squash planting was done at different times, so that the squashes would not all ripen at once.

Sometimes while they were planting, they sang songs about the seeds and the earth and the rain. They sang to help the corn grow. After all the fields

This Navaho boy is reading a story to his brother, who is not yet old enough to go to school. In the government schools, Indian boys and girls study reading, writing, and history. The boys also learn trades, and the girls learn homemaking.





had been planted, Old Man Salt sang this song:

*The seeds have gone into the ground  
In the middle of a wide field.*

*They have gone into the ground.*

*White Corn Boy has gone  
into the ground.*

*Yellow Corn Girl has gone  
into the ground.*

*Good and everlasting ones,  
they have gone into the ground.*

Everyone was happy when the corn was planted. It had been a long time since the harvest last fall, and their supply of corn was getting low. Now that the seeds were in the ground, they knew that in a few months they would have another harvest.

## DO YOU KNOW?

1. How did the Manygoats get their fields ready for planting?
2. How did they water their plants?
3. How was the planting done? Why do you suppose they sang as they worked?
4. What did the father tell his sons?
5. Will Joe be a good farmer? Why?

## LEARNING BY DOING

1. Can you make up a tune and sing the song that Old Man Salt sang after the planting?
2. In a small box of earth or sand, show how the irrigation ditches looked in the fields. Show one row open, and the others closed.
3. Find a sharp stick and try using it as a digging stick.

## BEING A GOOD CITIZEN

Do you think Joe was wise to listen to his father's advice? Why can older people often give good advice? Do you accept good advice?

# Shearing the Sheep

The grass had worn very thin around the Manygoats' winter hogan near the mountain. That meant that it was time to move to the plateau again for summer grazing. The land around their summer hogan had not been used all winter, and the grass there was fresh and green. The moisture from the winter snows had helped it grow. This grass would make good eating for the sheep.

One day soon after they had moved to their summer hogan, Joe's mother said that it was time to shear the wool from the sheep. Joe had noticed that when he had the sheep out grazing, they liked to rub themselves against rocks. This meant that they were beginning to shed the thick coats of wool they had grown during the winter. The Many-

goats decided to shear the sheep before they rubbed off their wool and left it hanging on rocks and bushes.

Joe was happy at the thought of shearing. Several times he felt the thick wool on the backs of his own sheep and thought of the knife he had seen at the trading post. He wondered whether he would have enough wool to get the knife this spring.

## Hard Work

It would take a long time to shear more than 400 sheep, and it would be hard work. Joe's father and George built a shelter for the workers to sit under while they were shearing. It was made of poles, with pine branches put across the top to keep out the sun.



When they were ready to start, Joe and Tom had the job of catching the sheep for the others to shear. The boys went into the corral, caught the sheep one by one, and led them out.

The sheep were frisky and hard to catch. Some of them had to be dragged out of the corral. The rest of the family laughed when a big sheep butted Joe in the stomach and broke away from him. When the boys caught him again, Joe grabbed his horns and pushed, while Tom lifted his hind legs off the ground and pulled. Finally they got him over to the shelter. After they had put the sheep on his back and tied his legs together, he stopped struggling.

Joe's mother was an expert shearer. She could work faster and get more wool than anyone else in the family. She cut the wool off in such a way that it all clung together in one piece.



The wool from each person's sheep was piled separately. Joe watched anxiously to see how his pile was growing. He had little experience in trading wool, but he thought his pile looked very big. He felt sure that there would be enough to get his knife.

### Off to the Store

More than a week was needed to shear all the sheep. By the time the job was done, the weather was warm. One morning Joe's father got up early, hitched the team of horses to the creaky old wagon, and loaded some of the sacks of wool. Then they all set out for the store.

When they arrived there, Joe's father drove the wagon over to the scales. The trader began to weigh the bags of wool. Joe and Tom went into the store. Tom said hello to some of the other people in the store, but Joe was a little bashful. He stood in a corner and only looked around to see who was there.

After a few minutes Joe's parents and the trader came in. The trader told them that their wool was worth \$105.00. Joe's mother and father talked a long time with the trader. He told them that the next time he drove his truck to Gallup, he would take their wool with him. There he would sell it to another man who bought a great deal of wool. That man would send it far away to some factories where it would be made into cloth. Later, the cloth might be made into shirts and coats and trousers.

This sheep is losing its winter coat of wool. Maybe it will make a winter coat for you. The wool next to the sheep's skin is clean and white. But the outside of the wool is full of sand and dirt.





The wonderful knife with three sharp blades is Joe's reward for a year's work.

When Joe's parents had finished talking, they were ready to pick out the supplies they needed. They bought some flour, coffee, sugar, potatoes, and salt. Then each member of the family was allowed to pick out something for himself. Tom got a pair of shoes. Joe's father chose a new hat. Isabelle and her mother each got a new blouse.

### Joe's Reward

Then Joe's mother beckoned to him to come to the counter. "It is your turn to pick out what you want," she said.

Joe looked quickly at the row of knives in the showcase. The one he wanted was still there! He pointed it out, and the storekeeper handed it across the counter. Joe thanked him. Then he held the knife tightly in his hand and walked to the door. Outside, he went around the corner of the store to examine his knife carefully. He opened and shut each blade many times. He tested the sharpness of the edges and the points. Yes, it was a good knife!

A long time had passed since he had first seen that knife. As Joe held it in his hand now, he thought of many

things. But most of all he thought of what Old Man Salt had often told him: "If you work hard and take good care of your sheep, you will be rewarded for your work."

### DO YOU KNOW?

1. What told the Manygoats that it was time to move back to the summer hogan?
2. How could Joe tell that it was time to shear the sheep? Why did he feel happy about that?
3. Who was the best shearer in the Manygoats family?
4. How did the boys help? Was this easy work?
5. Why was the wool from each person's sheep put in a separate pile?
6. Why did all of the family want to go to the trading post when they sold the wool?
7. What did the trader tell Joe's parents?
8. Would you like to wait as long for something you want as Joe waited for his knife?
9. What had Old Man Salt often told Joe about being rewarded for his work?

### LEARNING BY DOING

Write a story about Joe Manygoats, telling just what kind of boy you think he is.

### BEING A GOOD CITIZEN

How do you feel after you have worked hard? Is your reward always something that you can see, or do you feel happy because you have tried hard and have done your best?





Burton Holmes—Ewing Galloway

These desert nomads live in a hot, dry land that looks a great deal like Joe Manygoats' region. They move their tents and make a new camp wherever their sheep can find enough grass to graze on.

## Living in the World's Largest Desert

Far across the Atlantic Ocean, on the continent of Africa, is the largest desert in the world. It is called the Sahara. It is so big that Joe Manygoats' desert would fit in one corner. The entire United States could be put into the Sahara and there would be room left over. Can you find the continent of Africa on the world map in your Atlas? Can you locate the Sahara?

### A Look at the Sahara

In some places the Sahara does not look at all like Joe's desert. Piles of sand, called *sand dunes*, cover miles of the Sahara. Part of the desert is a plain covered with rocks and pebbles of different sizes.

But in many places Joe's desert and the Sahara look the same. There are

rocky hills and mountains. Among the hills are valleys with dry river beds. Everywhere the soil is dry and sandy.

Deserts make their sand. During the day there are no clouds in the desert to keep the sun from heating the rocks. They get very hot.

At night the desert gets cold. The rocks lose their heat quickly. The sudden changes in temperature cause the rocks to break. After many years they crumble into sand.

In some parts of the Sahara no rain has fallen for several years. It is so dry that not a tree or a bush or even a blade of grass grows. In other places, where there is a little rain, the scattered plants are mostly tufts of grass and hard, tough shrubs. These shrubs often have prickly branches and stems. Their roots are long



This map provides you with a good look at Africa. The equator runs through the middle of this continent. In which part of Africa is the Sahara? Which oceans border on Africa?

and go deep into the ground in search of water. These plants are food for sheep, goats, and camels.

Are there any wild animals in the Sahara? Yes, and many of them are the same kind of animals that live in Joe Manygoats' desert. There are fleet-footed antelopes, poisonous snakes, tiny lizards, and dangerous scorpions. Eagles soar overhead, and millions of flies make life miserable for animals and people.

### Meet Ali, a Boy of the Sahara

One of the boys who lives in the Sahara is Ali. Ali has never slept in a bed or sat in a chair. He has never eaten ice cream or even seen ice. He has never seen a lake or a forest.

Ali's people are *nomads*. Several families of nomads live together in a small desert community. They make a living by raising sheep, goats, camels, and donkeys. Since there is little grass in the desert for the animals to eat, they must move often. Besides grass, they must also find water holes.

When the grass is scarce, Ali gets worried. He has a pet camel. He does not want him to starve. So when Father says, "It's time to move again," Ali is ready to go.

Ali's family must have a home that can be moved from place to place. They live



in a wide, low tent made of goat's hair. In place of chairs and beds, they have rugs. Both the tent and the rugs can be rolled up and loaded on the backs of camels. There are no dishes or knives and forks; only a cookpot and some water bags.

### Food for a Boy of the Desert

Ali's favorite food is dates. Sometimes a handful of dates is all he eats for supper. Once in a while a lamb or a young goat



Rolling sand dunes cover miles of the Sahara. The sand blows easily because it is not packed hard. But the camel is well fitted for travel in the desert. His flat hoofs keep him from sinking in the loose sand.





This picture map shows where Ali lives. Where does he go to trade for some dates? How do Ali's people take their homes with them when they travel? Find the road that leads from Ali's community to the oasis. What form of transportation do you see on another road?

is butchered and the meat is shared with other families. Ali likes the meat when it is roasted on the open fire or cooked in a stew. Ali also likes goat's milk, but his father and mother drink tea or coffee. Everyone eats bread which is made out of wheat flour.

Ali's mother and sisters make the flour by grinding wheat between two stones. They do the cooking, milk the goats and camels, and churn the butter.

Ali and his family eat with their fingers, for they do not have plates or knives and forks. Since there is little water for washing, they clean their hands by rubbing them with sand.

### Clothing for the Desert

Ali's clothing is just right for the desert. The *turban* that he wears protects his

head from the sun. His long, loose clothing helps to keep him from getting too hot during the day and too cold at night.

Ali's mother and sisters make most of the clothing from the wool of their own sheep. They also make the carpets and the cloth for the tents. Ali and his father take care of the animals.

### A Camel Carries Its Own Food

The favorite animal of the nomads is the camel. He is useful in many ways. Camel milk is healthful and the meat is tasty. The hide makes fine leather, and the hair is used to make clothing, ropes, and tents.

The camel seems to be made for life in the desert. His flat hoofs keep him from sinking in the loose desert sand. He can live on tough, thorny plants.





The Sahara is the largest desert in the world. Is this desert north or south of the equator? Part of this desert land is also found in a continent to the east of Africa. Which continent is this?

When there is plenty of food and water, he eats and drinks a great deal. His hump becomes large and firm. The fat in the hump later serves as food on long journeys. On the march the hump becomes smaller and smaller as the fat is used up. The camel can travel for many days without water.

### Ali Has Many Things to Learn

Ali doesn't go to school but he still has many things to learn. He must know how to find food and water for the animals; how to save them during dangerous sandstorms; how to protect them from wild beasts; how to shear sheep; how to put up tents; how to prepare leather for market. Oh, there are many things for Ali to learn!

Ali would also like to learn something about other people. Sometimes while he is riding on his pet camel, the roar of motors will make him look up at an airplane crossing the desert. What makes it go so fast? Where did it come from? Where is it going? Is the whole world a desert? How do other people live? Ali begins to wonder and dream. He talks to his father, who says, "Wait, my

son. Before many days we shall visit the *oasis* called El Akbar. There you will see and learn many things. Have patience."

### Living in an Oasis

An oasis is a "green island" in the brown desert. Here there are wells and springs that supply water for the oasis community.

The hot sunshine and the water make plants grow fast in an oasis. Many of the oasis families are farmers. They usually have three layers of crops. At the bottom are low plants such as vegetables, wheat, or cotton.

Here you see old and new ways of transportation in the desert. It's rough riding in a jeep or on a camel, but they're good for crossing the desert.

*Erwing Galloway*





In the middle are the fruit trees, such as apricots, figs, peaches, pears, and olives. There are also some grape vines. At the top are the date palms with their light feathery leaves.

The date palm is very important to the people in the Sahara. The fruit is eaten either fresh or dried at almost every meal. The trunk is used for firewood and lumber. Baskets, mats, and ropes are made of the leaves and bark.

Some of the oasis families are traders. They trade with nomads like Ali's father. They give him such things as wheat and dates, coffee and tea, in exchange for wool and hides. Sometimes Ali's father will trade a few of his animals for a gun, a knife, and some cotton cloth. The traders tried to get Ali to sell his pet camel, but he would not part with it.

One day when Ali was sitting in the market place of the oasis of El Akbar, a truck, covered with desert dust, stopped nearby. The driver began to unload some things which made Ali's eyes grow big. There were sewing machines, books, flashlights, radios, guns, and knives. Shyly, Ali asked the driver where he came from. Where did he get these wonderful things?

The driver told him a little about the green world outside. Now Ali hopes that someday he may visit the big cities to the north and look across the blue waters that stretch out farther than anyone can see.

### **An Oasis Hundreds of Miles Long**

Near the eastern edge of the Sahara is a great river. It gets its water from

An oasis shows how the desert can come to life when there is water to make things grow. Notice that the buildings have thick walls made of mud bricks. Such homes are cool inside, even under the desert sun.

*Erwing Galloway*







This map shows where the deserts of the world are located. Name the continents which have little desert land and those which have much desert land. Is the Sahara the only desert in Africa?

rains that fall in the mountains far to the south. It flows through one of the driest parts of the desert.

Along both sides of the river the land is green with crops watered by irrigation. Hundreds of little villages dot its banks and millions of people live in this strip of green.

This river is named the Nile. It is the longest river in Africa. Can you find it on a map? The Nile and the irrigated land along its banks form the greatest oasis in the world.

### Desert Communities Near and Far

We have read about desert communities in our country and in North Africa. As we continue our social studies, we shall explore other desert communities. Our map shows that they are located in North America, South America, Africa, Asia, and Australia. Of all the continents on which man lives, only Europe does not have great deserts.

### DO YOU KNOW?

1. What is the name of the largest desert in the world? Where is it?
2. How do different parts of this desert look?
3. How do deserts make sand?
4. Why are some people called nomads?
5. How is Ali's life different from yours?
6. What would you eat if you visited Ali?
7. What clothing is best for the desert?
8. Why is the camel the favorite animal of the nomads?
9. What does Ali need to learn?
10. What makes an oasis different from other parts of a desert?
11. Where is the greatest oasis in the world? What is it like?

### LEARNING BY DOING

Fold a paper in the middle. Write *Joe's Desert* at the top on one side. Write *Ali's Desert* on the other side. List the kinds of animals, plants, foods, homes, work, clothing, and furniture found in each of these deserts on the side where they belong.

### BEING A GOOD CITIZEN

If you were Ali, would you sell your pet camel? How do you care for pets? What do all pets need?



## A New Look at Grazing Communities

### THINGS TO TALK ABOUT

1. What picture do you see in your mind when you hear the word desert?
2. In what way would you travel if you could go on a trip across a desert? Why would you go that way? What would you take with you on the trip?
3. Compare the picture maps of Joe's and Ali's communities, on pages 83 and 102. What things are alike? What things are different?
4. What are the most useful desert animals? How does each of them help desert people?
5. In what ways are Joe's life and Ali's life alike? How are they different?
6. What are the important foods in Joe's desert? In the Sahara?
7. How is the clothing of the people in the two deserts different?
8. In what ways is trading in the two deserts alike?
9. How is the land in the "greatest oasis in the world" irrigated?

### CHECKING YOUR SKILLS

Some people are skillful in using books. They know how to use the different parts. They are able to find information, pictures, and maps quickly. How skillful are you in using this book?

Turn to the *Table of Contents* in the front of the book. How many units are there? What is the title of each? On what page does each one begin?

In each unit are headings that tell what the next part of the story will be about. Find some of the headings and read them.

The questions under "Do You Know?" were planned to help you study alone. You should read the story first, then ask yourself each of the questions. If you cannot answer all of them, read again very carefully.

The things listed under "Learning by Doing" should be fun to do. They will also help you to learn more.

"Being a Good Citizen" should help you to know what is right to do when it is not easy to decide.

Turn to the *Index* in the back of the book. It lists all the important things that are told about in the book. On what pages can you read about *fire prevention*? The *Amazon River*? A *trading post*?

The letter *m.* after a word means that there is a map of that place. The letter *p.* means that there is a picture. In the index find pages with maps and other pages with pictures on them.

### BEING A GOOD CITIZEN

Joe Manygoats and Ali both wonder what the world is like beyond their deserts. They want to learn about it. How can they help their families and friends by learning more? What do you want to learn? How will you be able to help yourself and others if you learn all you can?

### BOOKS TO ENJOY

Beston, Henry, *Sons of Kai*. A legend of the Navahos, simply told.

Buff, Mary, *Dancing Cloud*. Navaho children help to build a hogan and do many other things.

Bulla, Clyde R., *Eagle Feather*. Tells what an Indian learned at the trading post.

Clark, Ann Nolan, *Little Navaho Bluebird*. Story of a Navaho girl and her family.

Hogner, Dorothy C., *Navajo Winter Nights*. The medicine man tells many stories.

Huntington, Harriet E., *Let's Go to the Desert*. Tells about desert plants and animals.

Kissin, Rita, *Desert Animals*. Stories and interesting pictures.

Pack, Elizabeth, *Saddle for Hoskie*. A Navaho boy gets a saddle at the trading post.

Rhodes, Geneva Linebaugh, *Moonlight and Rainbow*. Easy stories and Navaho pictures.

Scacheri, Mario and Mabel, *Indians Today*. A visit to Navaho and Pueblo Indians.

Sperry, Armstrong, *Little Eagle, A Navaho Boy*. Eagle wanted to go to a government school.

Tietjens, Eunice, *Boy of the Desert*. An Arab boy travels through a large desert.

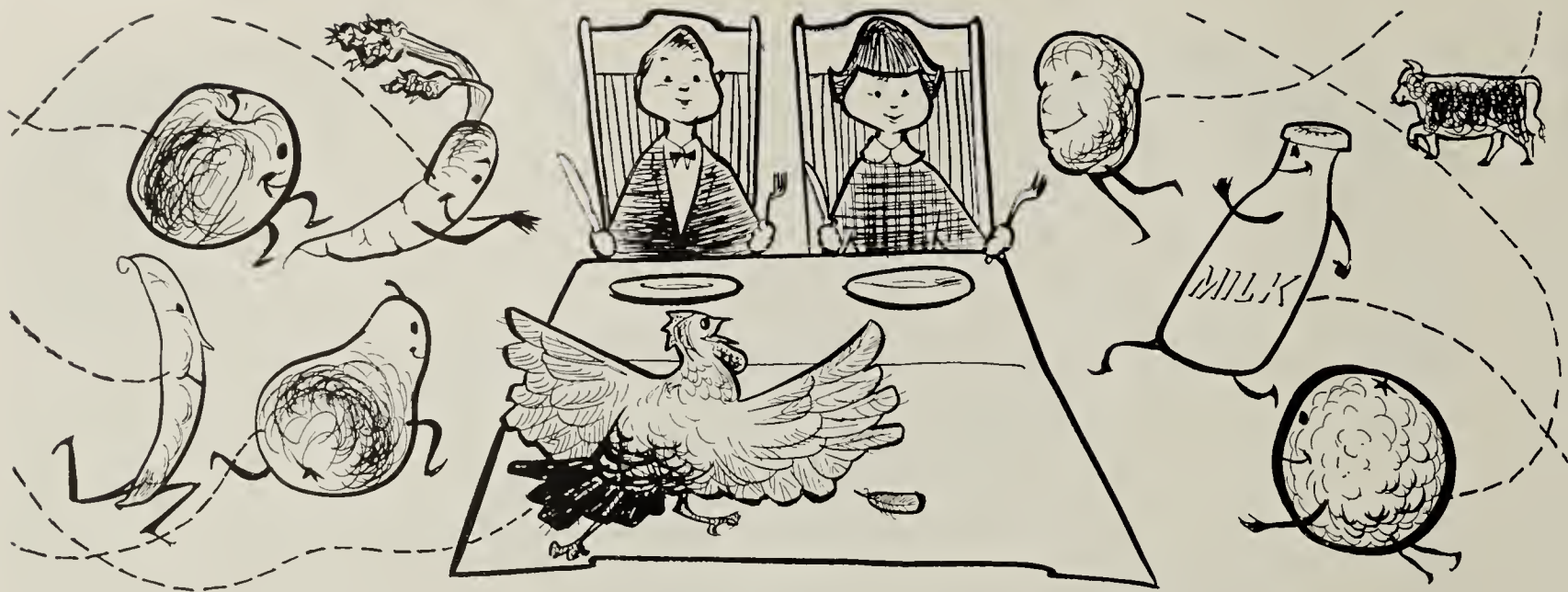




# Sandra and the Golden Wheat

UNIT 3





## Living in a Farming Community

Have you ever stopped to think how many wonderful things come from our farms? Rice and wheat, corn and oats, milk and meat, fruits and vegetables, cotton and wool are all farm products. Can you name others?

The most valuable farm product in many parts of the world is wheat. You can find wheat fields on every continent except the one at the South Pole.

Sandra lives on a wheat farm in our country. Look at the map of the United States in your Atlas. In what state does Sandra live? Is the land a plain or is it mountainous?

This unit also tells the story of the Doolin family who live in the wheat-growing region of Australia. Look at your world map and see where the Doolins live.

From these stories you may be able to answer the question—Would I like to live in a farming community?

### I WONDER

I wonder if it would be more fun to live on a wheat farm in the United States or in Australia.

I wonder how farmers raise wheat.

I wonder why wheat is often grown where there is little rain.

I wonder if I can name more than five different foods made of wheat.

### WORDS WE NEED TO KNOW

alfalfa

drought

soddy

station

blizzard

dustbowl

soil conservation

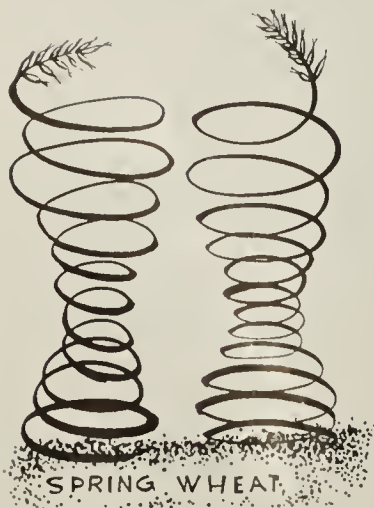
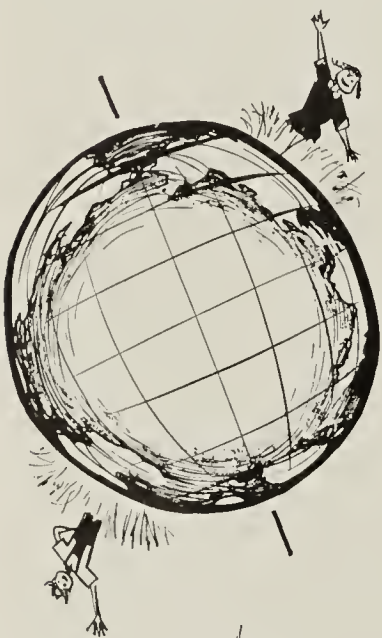
threshing

combines

sheaves

spring wheat

winter wheat







The meadow lark on the fence post is singing "Spring is here! Spring is here!" Although the fields of wheat are bare and brown, Sandra believes the meadow lark. He is one of the first signs of spring.

## Springtime on the Farm

Sandra Clark hopped off the school bus and waved good-bye to her friends. She stood for a moment watching the bus go down the road. Then she turned into the lane which led to her home. It was lonesome going up the dirt road without her big sister Peggy. She had stayed at school to practice for a play.

A chill March wind pulled at Sandra's coat. She buttoned the collar and tied her kerchief more tightly over her head. She looked at the bare brown fields stretching on either side of the lane.

"Won't you *ever* get green?" she asked. "Won't spring ever—"

She was interrupted by a clear, sweet burst of sound. She looked up, startled. There on a fence post sat a gay bird

with a yellow breast and black collar. It was a meadow lark.

Once again he sang his cheery message, "Spring is here! Spring is here!"

"Oh, I could kiss you!" Sandra exclaimed, moving closer.

The meadow lark had other ideas and flew away across the field.

Sandra ran up the lane and into the kitchen, where her mother was busy at the stove. "It's here!" she exclaimed. "Spring is here. I heard a meadow lark."

"Shut the door," laughed her mother. "That wind still feels more like winter. I knew spring was here without a lark to tell me. Your father has been looking at the wheat every day for a week. That's a sure sign."





Sandra and Peggy know that spring is on the way. The strips planted with wheat are beginning to turn green, and flocks of wild geese are heading north. How will the trees in the farmyard look when summer comes?

At supper that night, Sandra told of seeing the meadow lark.

"I heard him, too," big Jim Clark said, smiling down at his daughter. "It's a right pretty sound to my ears. It lets me know it's time to start spring work."

"Mother says you've been looking at the wheat. Won't it grow just as fast if you don't watch it?" teased Sandra.

"Maybe," smiled her father, "but I want to see what winter has done to it."

"What could winter do to it?" asked Sandra.

"Several things. A cold spell like that one in January, with no snow blanket to protect the wheat, might have frozen the roots. Remember the warm spell we had in February? That started the

wheat growing. Now we've been having freezing weather in March. That's hard on tender wheat."

"If all those bad things can happen, why don't you plant wheat in spring instead of fall?" Sandra asked.

"Our summers are too hot," her father explained. "Wheat must do most of its growing in cool weather. So I plant *winter wheat* in the fall. It gets well rooted before winter. Now in the cool spring days it will grow rapidly. By the time summer comes, it will be ready for the hot sun to ripen it."

From then on, Sandra watched the fields as eagerly as her father did. Soon the brown gave way to beautiful green. Other signs of spring appeared. Large



flocks of honking geese flew northward. The streams were dotted with ducks. Wild flowers bloomed in the lane—buttercups, sweet peas, Dutchman's-breeches, and in the shady spots, shy "Johnny-jump-ups."

### The Dust Storm

One morning Sandra said to her mother, "The dust is deep in the lane now. My shoes and socks get dirty when I walk to the bus stop."

"Dust them off before you go into the schoolroom," her mother said.

After Sandra and Peggy had gone, Mrs. Clark went out on the porch and studied the sky. No sign of clouds!

The weather continued dry. Then one day a strong wind came racing out of the southwest, carrying clouds of dust.

"It's like a *blizzard*, only black," Sandra gasped, as she and Peggy struggled up the lane.

"Don't talk," said Peggy. "Pull your kerchief over your mouth and nose."

Mrs. Clark met them at the door. "Come in, come in, dears," she said. "I'd have come to meet you, but Father has the car. My, you're dirty! You'll have time for baths before supper."

Mr. Clark came in while they were setting the table. "I had to drive with my lights on all the way," he said. "That dust is worse than fog."

"The car is all dirty," mourned Peggy. "I spent Saturday morning shining it."

"A dust storm can do more harm than that," her father said, shaking his head.

Supper wasn't as cheerful as usual that night. Before it was over, a new sound was added to the noise of the wind. First there was a growl in the distance. As it grew louder and louder, they knew that it was thunder. Suddenly there was a wild spatter of rain, and great blobs of mud appeared on the windows.

Soon the wind died away. There was no sound but the patter of the rain. At once, everyone became more cheerful.

"I'm glad the rain came," said Mrs. Clark. "Maybe we won't have a *dustbowl* again."

"What do you mean, a 'dustbowl'?" Sandra asked.

### Dustbowl Days

"That is what they call a region that suffers from *drought* and dust storms," her father answered. "In the 1930's, this part of the country was a dustbowl."

This shows what happened to many farms during dustbowl days. Good soil from the fields was carried away by the wind and piled up in other spots. Dust buried farm machinery and blocked the barn doors. After the farmers gave up and moved away, the farm buildings went to pieces.





For several years there was little rain; the soil in the fields dried up and blew away. Dust was heaped as high as the fence tops. Farm machinery was buried under piles of dust. Farmers could not raise crops, and there was no pasture for the cattle. It was a bad time for farmers."

"How did you manage?" Sandra asked.

"We managed because your father is a fighter," her mother answered. Her dark eyes shone. "People on every side of us left their farms—but not your father. The harder the wind blew, the more stubborn he got. He said this was his land and he was going to stay on it as long as there was any left."

"Yes, I fought," Mr. Clark agreed. "And who do you think fought right along beside me every step of the way? Your mother did. She taught school for five years to make money to help out.

In the summer she raised chickens and vegetables. She helped me in the fields, too."

Sandra said, "If those times ever come again, Peggy and I will help fight. Won't we, Peggy?"

Peggy nodded. "They'll never be as bad again, though. Dad and the neighbors have worked together to stop it."

"How can you stop wind?" Sandra asked.

"We can't stop it," her father said. "But we check it with the *windbreak*."

"You mean the trees that run along our land and Mr. Andrews' and Mr. Jenkins'?" said Sandra.

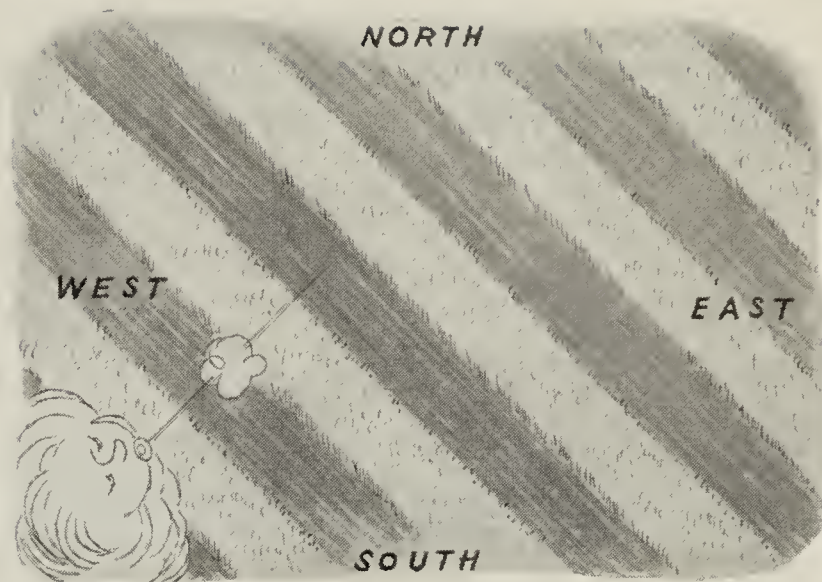
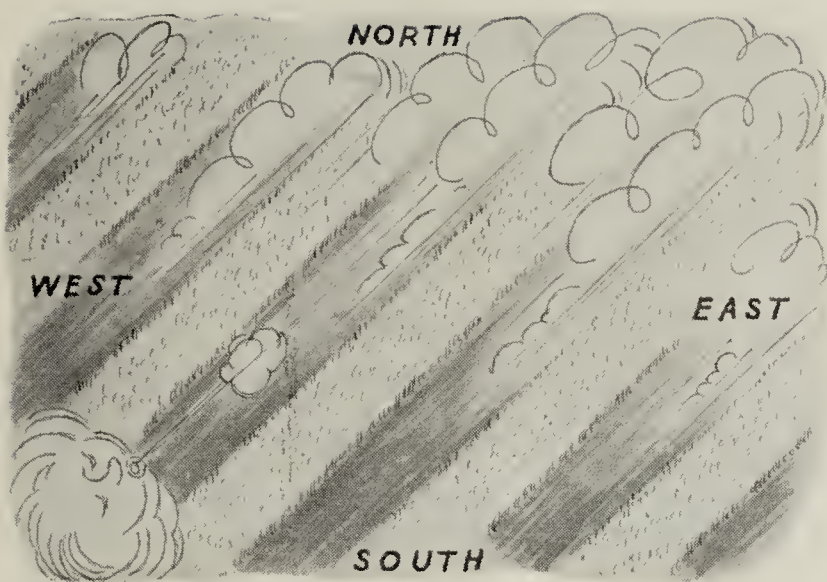
"Yes. The trees break the force of the wind. And grass helps hold the soil in place. So we have all our rough land seeded to grass, and we don't let the cattle eat it down as closely as we used to."

"Strip farming helps, too," Peggy said.



Six years after planting, these ten rows of trees give good shelter to the fields and farmyard. They break the force of the wind and keep the precious topsoil from blowing away. Notice the long straight highway heading off into the distance. Is it like the roads near Evergreen City? Is it like the roads near Joe Manygoats' home?





At certain times in Nebraska, warm winds often blow from the southwest. If Mr. Clark plowed his fields with strips running from southwest to northeast, as shown at the left, the wind would blow much of the topsoil away. But when the strips run from southeast to northwest, the wind cannot pick up so much soil.

"I think the fields would be prettier if they weren't divided into strips with half of them bare," Sandra said.

"Prettier, maybe, but a big bare field can get up and fly away more easily," laughed her father. "With our fields divided into strips, one seeded, one bare, the wind can't pick up so much of that precious topsoil."

"But why do you have the strips catty-corner?" asked Sandra.

"That's to make it harder for Old Man Wind to get the dirt," her father explained. "He often comes from the southwest. I plow the strips from the southeast to the northwest. That way he can't run along a strip, scooping up the soil as he goes."

"Old Man Wind had it all his own way in dustbowl days," said Mrs. Clark. "But we've learned a trick or two since then."

"Old Man Wind is an enemy," Sandra declared.

"He's not always an enemy," her father answered. "When he turns the windmill to pump water for thirsty cattle, he is a real friend. In fact, he is more friend than enemy most of the time."

### DO YOU KNOW?

1. What birds and flowers told Sandra that spring was near? What signs of spring have you seen in March?
2. What is *winter wheat*? How can cold weather harm it? How does a blanket of snow protect it?
3. Why doesn't Sandra's father plant wheat in the spring as some farmers do?
4. What is a dust storm like?
5. What is meant by a dustbowl? What causes it? How have the Clarks and their neighbors worked together to prevent another dustbowl?
6. What is meant by strip farming? Why don't the strips go straight across the fields?
7. In what ways is wind a friend and in what ways is it an enemy?

### LEARNING BY DOING

Pretend to be a newspaper reporter and write a story about a dust storm for your paper. Tell what it was like, what harm it did, and how the people in the community worked together to fight it.

### BEING A GOOD CITIZEN

Mr. and Mrs. Clark would not give up when dust storms destroyed their crops and their pastures. They worked harder than ever.

What do you do when things are bad? Do you give up or do you keep on working? Can you tell about one time when something looked too hard to do and you did it anyway?





This is the Clark farm. Compare it with other farms you have seen. Is it larger or smaller? Do the wheat fields run in the same direction as the road? Why do they run the way they do?

### Arbor Day

Several days of rain followed the dust storm. A "million-dollar rain," the papers called it. Then came sunny weather. The wheat grew so fast that Sandra could almost see the difference each day.

She and Peggy loved the walk down the lane these beautiful mornings. To-day they were in their best dresses. Sandra's was rose nylon, which looked nice with her dark curls. Peggy had a light-blue dress. With her yellow hair, Sandra thought Peggy looked like the sun goddess it told about in their readers at school.

It was April 22, J. Sterling Morton's birthday. This is Arbor Day in Nebraska. The children were going to celebrate Arbor Day at their school.

"We're going to see a film about J. Sterling Morton this afternoon," said Peggy. "He worked hard getting folks to plant trees."

"I'm proud to think that Grandpa helped plant the first tree in the grove at school," Sandra said.

"Yes, the big cottonwood," Peggy answered. "When it was small, they moved it from down by the river. The boys had to pump water by hand and carry it in a bucket to keep the tree alive. By the time Father was in school, they had a



windmill to water the trees. And now there's an electric pump and pipes for irrigating. Oh hurry! Here comes the bus."

As they neared Grove School, Sandra looked with pride at the big, modern building with its well-kept lawn. There were lilacs and bridal wreath in full bloom. Behind the school, the grove made a green background. Grove School took its name from the trees near it. They had been planted and cared for through the years by the school children.

As the grove had grown, so had the school. When her great-grandfather came, the schoolhouse was a *soddy*, and there were no trees. In her grandfather's day, there had been a one-room wooden building. The present fine building had been finished since Sandra started to school.

"Let's go out to the grove," Sandra said to her friend Vicki when they got off the bus. "I want to see where they're going to plant our tree."

They found the custodian and his helper busy digging a hole. Sandra was amazed at how far away it was from the other trees.

"We have to give them plenty of room if we want them to grow into big, well-shaped trees," the custodian explained.

The old cottonwood was in the center of the grove. Trees of many kinds were arranged around it. Each year, two trees were added—one by the High School and one by the grades. The children could choose the kinds of trees they wanted if the expert at the university said they would grow well.

The custodian leaned on his spade and gazed around the grove with pride.

Sandra has fun with her pets on the farm. Do you have any pets? What kind are they?





"There's not another like it in the state," he said. "We had our picture in the city papers four years ago when the grove was fifty years old." He laughed. "The birds think it was planted for them. Listen to them sing! There must be fifty different kinds nesting here."

"Lots of squirrels, too," said Sandra. "There's our pet. I can tell him by his bushy tail. Skippy, here, Skippy," she coaxed.

A saucy red squirrel crept close. Then with a wave of his tail he dashed around a tree and disappeared.

"He isn't hungry today," said Vicki. "Last winter he came to us without any coaxing."

The bell rang and the girls hurried to the schoolhouse. "I'm glad we're going to plant a horse chestnut tree," Sandra said. "That will make more food for Skippy. Besides, it's such a pretty tree with its dark green leaves and big flowers."

That afternoon the children and teachers, led by the band, marched to the grove for the planting.

"Trees are as different as people," thought Sandra, as the dainty white birch the High School had chosen was planted near a red cedar.

The horse chestnut was planted beside a Russian olive tree. Sandra thought how nicely its gray leaves would contrast with the dark green leaves of the chestnut.

After the planting, there was a program. Peggy and three other girls sang "Trees." Someone recited "Woodman, Spare That Tree," and someone else, "The Groves Were God's First Temples."

The whole school sang "America, the Beautiful."

"We're helping make America beautiful," Sandra told Vicki.

Then they all went to the assembly to see the film of J. Sterling Morton's life.

### Helping in the Garden

Sandra liked school, but spring on the farm was always exciting. So she was glad when May 21 came and school was out. Now she could get acquainted with the new calves, cute ducklings, and downy chickens. Mrs. Blue, her cat, proudly showed her three squirming kittens, their eyes not yet open. They were hidden in a corner of the tool shed.

Sandra helped her mother plant garden. "Everything I learn now will help me next year when I start 4-H work," she said.

Her mother nodded. "Everything good we learn helps us sometime."

"Did you help your mother make garden?" Sandra asked.

"No, I grew up in a mining town," Mrs. Clark answered. "There weren't any gardens or flowers or many trees."

"Oh!" Sandra looked around, trying to imagine their yard without its velvety lawn, pretty flowers, and tall trees.

"That's why I came out here to teach," Mrs. Clark said. "I wanted to be where there were growing things. I had never seen a cow milked nor a chicken raised. I loved this country from the first day I saw it. I still do." She stood up and looked around with eyes filled with love and pride. "It satisfies me."

"Sometimes it satisfies me," Sandra said. "But there are so many things I





Sandra and her mother enjoy working in the garden.  
They like to make things grow.

want to see. Big cities with all the wonderful things in them—museums and zoos and big stores. And oceans . . . I want to ride on a big ship. And mountains . . . it's so flat here. I want to see how other people live, too, people far away from here. There is so much in the world I want to see."

"Maybe someday you can see it all," her mother answered. "That is one of the fine things about living in this country of ours. You can be what you want to—go where you want to—and live where you want to."

Her eyes twinkled. "Just now I want to go in the house and bake your father a lemon pie. Two more rows of beans will be enough to plant, honey."

"Be what I want to—go where I want to—live where I want to," Sandra repeated after her mother had gone. "That makes our country sound as magic as the fairy godmother was to Cinderella." She pressed dirt firmly in the row she had planted. "No, it's not magic. We have to *work* for that, and I will."

### DO YOU KNOW?

1. What did J. Sterling Morton do that people remember? What is the purpose of Arbor Day?
2. How has Grove School changed since Sandra's grandfather went there?
3. What was the program for Arbor Day?
4. How did Sandra spend her time after school closed? How was she getting ready for 4-H Club work? For grownup work?
5. What would you see if you stood on the Clark farm and looked around?
6. What else does Sandra want to see?
7. What did Mrs. Clark say about living in this country? What does that mean to you? How can you make it come true?

### LEARNING BY DOING

1. Learn when Arbor Day is celebrated in your state. Talk with your teacher about what you can do on that day.
2. As you go home from school, try to name the trees that you see along the way.
3. Look for pictures of trees and see how many kinds you can learn to know.

### BEING A GOOD CITIZEN

How can you "Be what you want to—go where you want to—live where you want to"? Will wishing for these things bring them to you? What must you do?





In the wheat states, every small town has a row of grain elevators, where wheat can be stored. Railroad tracks are built alongside, so that freight cars can pull up to be loaded. Then the grain is carried to other communities to be made into flour.

### Aunt Letty Comes to Visit

A few days later, Aunt Letty came. Peggy and Sandra had never heard of her.

"She's my father's sister," Mr. Clark explained. "That makes her your great-aunt. She lives in Ohio. She left here more than fifty years ago, and has never been back."

"She'll see some changes," laughed Mrs. Clark. "This country has changed a great deal since I came here twenty-two years ago."

Aunt Letty was a brisk little old lady. She noticed plenty of changes from the time she stepped on the station platform.

"What do you need those for, Jim?" she asked, pointing to the towering grain elevators. "Every town out this way has them. You certainly can't hope to fill that many."

"We'll fill them all before harvest is well started," said Mr. Clark, leading the way to the car. "This is wheat country now, Aunt Letty."

"When I left here, it hadn't made up its mind what to be," Aunt Letty said.

"The cattlemen were trying to hold onto it. The farmers were raising a little of this and a little of that. But grasshoppers and drought ruined many crops."

"Cattlemen, grasshoppers, and drought had their day," Mr. Clark said. "Now the wheat farmer has taken over. We can keep grasshoppers down by poisoning. We've learned to let part of the ground lie idle and collect moisture for the next crop. Times have changed a lot since Grandpa Clark came out here in the 1870's."

"When my father got the farm, he started raising winter wheat. He used to tell us boys we could be proud to raise something as necessary as wheat. The whole world needs wheat."

Aunt Letty exclaimed with surprise when she saw the fields of sturdy wheat almost ready to head. "Why are some parts of the fields bare?" she asked. "Is it poor soil?"

"No," Mr. Clark explained. "That land is resting and collecting moisture. I'll plant those strips this fall."

When they got home, Aunt Letty looked about the comfortable farmhouse



in surprise. "An electric range!" she exclaimed. "A deep freeze! Maggie, I believe you have every electric gadget that I have in my city home."

"Since electricity has been brought to the farms," Mrs. Clark explained, "country folks can live as comfortably as city folks. We can fill the deep freeze with our own meat and chickens and vegetables. It doesn't cost much that way."

"I'm glad I came," Aunt Letty said. "I'll tell you a little joke. All these years I've been away, I've been feeling sorry for you folks out here. I see now I wasted my pity."

"You really did, Aunt Letty," Mr. Clark laughed. "Pity is something we don't need."

### The Old Sod House

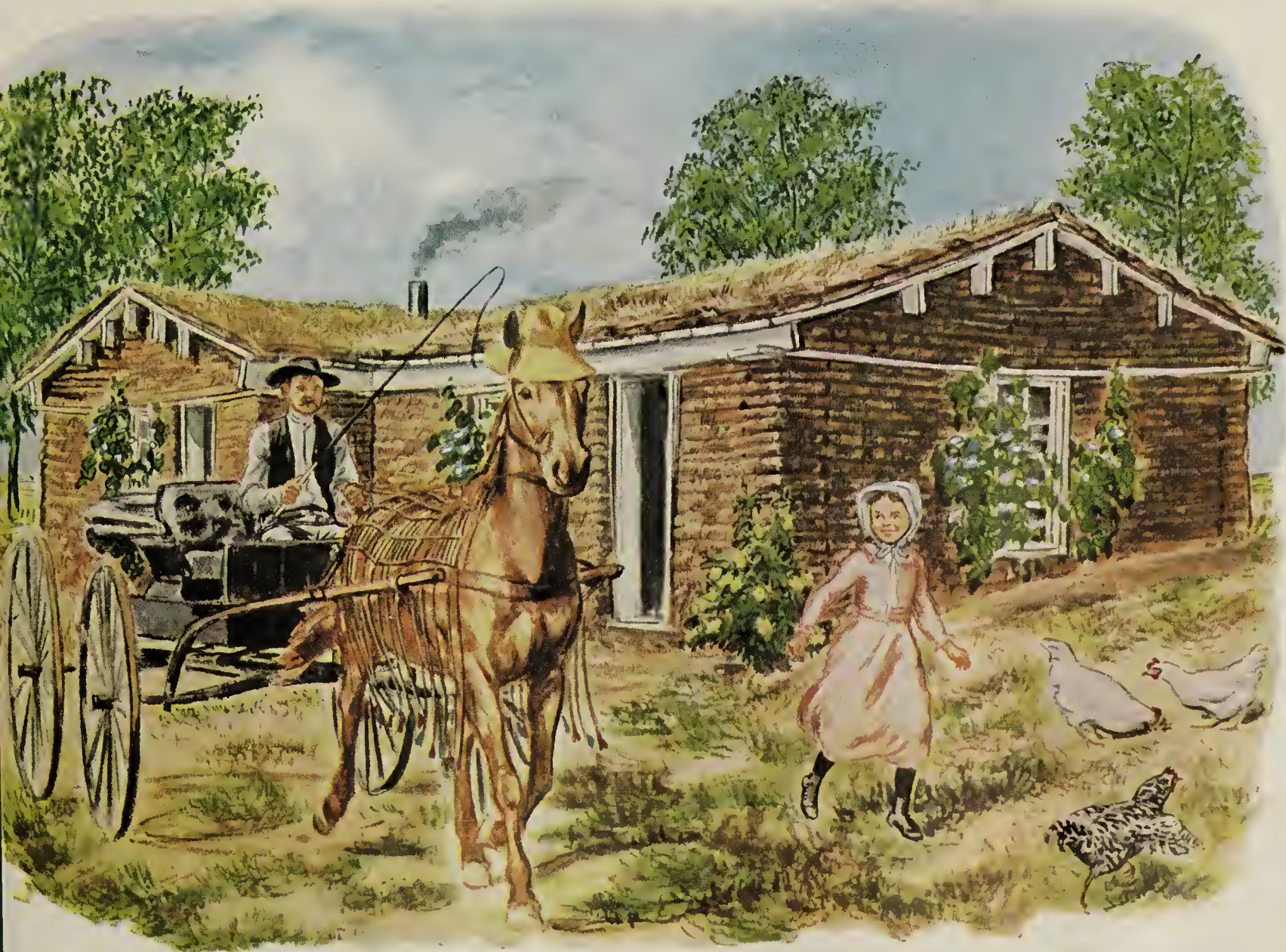
Next morning, Mr. Clark said, "Sandra will take you around, Aunt Letty. There must be lots of things you want to see."

"The soddy first," Aunt Letty said. "I was born and raised in it. So was your pa."

Sandra said, "I used to have a playhouse in it. It was nice and cool."

"Cool in summer and warm in winter," Aunt Letty agreed. "Wait until I get my

This is how the sod house looked when Aunt Letty was a little girl. Not much grass grew in the yard, but they watered the rosebush and morning-glories with water saved after washing. Aunt Letty's father is ready to go to town with the horse and buggy. She hopes she can go, too.





camera. I want pictures of everything to take back to the children. I've tried to tell them about sod houses, but they don't understand what they were like."

"Aren't there any old soddies back there?" Sandra asked.

"No. They didn't use sod to build pioneer homes except in this part of the country. There were few trees here."

The sod house stood in a corner of the barnyard, with a few old cottonwood trees around it.

"This is the first thing I've seen that doesn't look better than it did in my day," Aunt Letty said, snapping a picture. "We had a yellow rosebush at the corner—one Ma had brought from the East. There were morning-glories at the windows. I used to keep them watered with water we saved after washing."

The sod house was filled with old tools and utensils. Harnesses and saddles hung on the walls.

"They used those plenty in my day, but now you have tractors instead of horses," Aunt Letty said. "Here's Pa's old buggy whip with the ivory handle. And here's the fly net."

Sandra stared puzzled at the coarse netting. "How could that catch flies?" she asked.

Aunt Letty laughed. "It didn't catch flies. It was put on the horse to keep the flies away. It swished as the horse moved along."

"Look at the old lamps." Sandra pointed to a shelf full of kerosene lamps.

"I hate to look at them even now," Aunt Letty declared. "I used to have to wash the chimneys every morning."

"Didn't you go to school?"

"Yes, I walked two miles over the hills. But I had work to do before I went. Oh! Here's the churn." She pointed to a deep wooden container with metal bands around it. "I had to churn every Saturday. Sometimes it took hours to get butter. My arm got so tired, pushing the dasher up and down."

"Mother has a little glass churn," Sandra said. "It runs by electricity and takes only a few minutes to get butter."

"You have an electric refrigerator, too, to keep milk and butter fresh. We kept ours cool in a trough of water."

In another corner they found flatirons. "Some old folks called them 'sad irons,'" Aunt Letty said. "I know why. It used to make me sad to use them. We had to keep a big fire to heat them, no matter how hot the weather was."

"How did you lift them?" Sandra asked. "Those iron handles must have been hot."

"We used cloth pads," Aunt Letty explained. "Even then the palm of my hand would be red and tender when I finished ironing."

There was a big iron kettle for making soap, and a smaller iron kettle for making mush. "Saturday night was corn-meal-mush night, as well as bath night," Aunt Letty said. "We bathed in the kitchen in a wash tub, and had to heat the water on the stove."

"Goodness!" gasped Sandra. "Times have changed!"

"Yes, fifty years bring many changes to a progressive country like ours. When you can look back fifty years, you'll probably see as many changes as I have," Aunt Letty said.





Electricity helps to make women's work easier. In old days, ironing had to be done with heavy "sad irons" heated on the stove. How does electricity help with washing and ironing in the picture at the right?



Churning by hand took much longer than it does to make butter in an electric churn. In old days, milk and butter were kept cool by putting them in a trough of running water. How do we keep them cool today?





## Baling Hay

"The baler will be here today," Mr. Clark said next morning. "Do you want to see some hay baled, Aunt Letty?"

"Yes, I do," Aunt Letty said. "Pa kept his hay in stacks in the field. He hauled a load to the barn when he needed it to feed the horses and cattle."

"Don't they bale hay where you live?" Sandra asked.

"I suppose they do, out in the country—only I don't get out there. When we go for an outing, we go to a city park."

"City children surely see different things that I can't see," sighed Sandra.

"Yes, and you see things that they can't see. Every part of this big coun-

try is different, yet each depends on the other. In my city, they make machinery your father uses," Aunt Letty replied.

"And he raises the wheat to make flour for you," Sandra said.

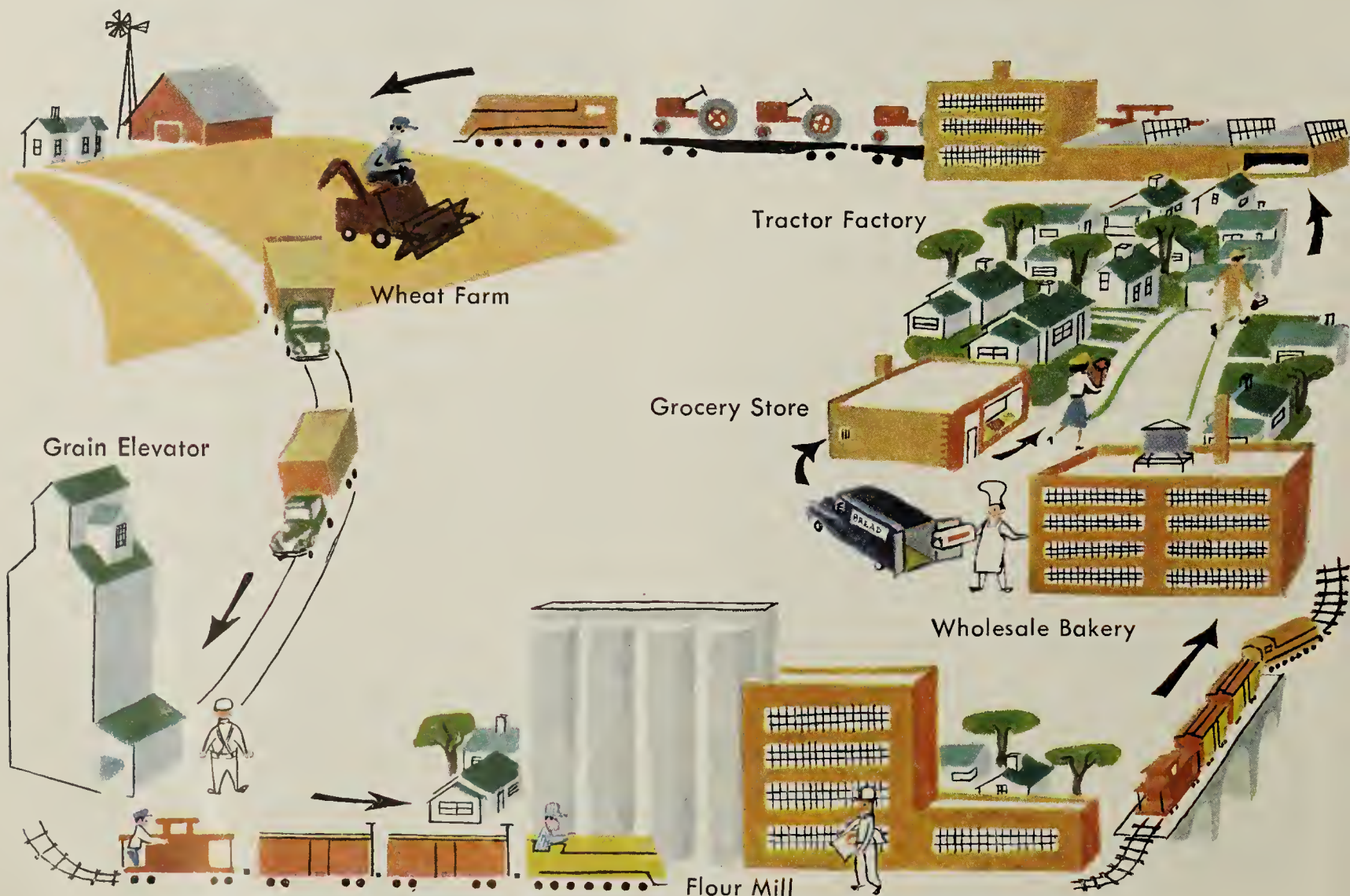
"That's right. And somewhere else they make the trains that haul the wheat and flour and machinery. There's no end to the ways we depend on each other."

"It makes us seem like one big family," Sandra said.

When they drove out to the hayfield, Aunt Letty sniffed. "I haven't smelled fresh-cut hay in years," she said.

At one side of the field, Peggy was raking hay into rows with a machine. She waved to them.

Trace what happens to Mr. Clark's wheat after it leaves the farm. What does he get from the city factory?







After Peggy has cut the alfalfa and raked it into rows, it is ready for baling. The baling machine scoops up the dry hay, packs it into tight bundles, and ties them with twine. Now the hay can be stored away for the cattle to eat in the winter.

“Dad says she does as much work as a hired man,” Mrs. Clark said.

In another part of the field, hay was already in rows. A man on a tractor drew the baler. Mrs. Clark drove close so that Aunt Letty could see how it worked.

The hay was swept into the hopper and packed tight. Then the machine wrapped and fastened twine around it and shoved the bale onto a platform. Mr. Clark stood there to push the bales clear.

#### DO YOU KNOW?

1. What did Mr. Clark mean by calling his part of the country “wheat country”?
2. What changes did Aunt Letty notice?
3. What do you know about grain elevators?

4. What have farmers learned since the 1870's?

5. What is meant by letting land rest?

6. What is a sod house like? What did Sandra and Aunt Letty find in the old house? How were these things used in the early days?

7. In what ways do city people and country people depend on each other?

#### LEARNING BY DOING

On the drawing on page 122, trace what happens to Mr. Clark's wheat after it leaves his farm. Write a story called “The Journey of a Grain of Wheat.” Tell how it traveled and all the interesting things about it.

#### BEING A GOOD CITIZEN

Many machines have been invented which help make work easier. Do you think the men who invent new machines are good citizens? How could you prepare yourself for this kind of work?



# Summer Work and Play

June weather was bright and hot—good for gardens, wheat, and hay. Good for weeds, too. Mr. Clark and Peggy were busy with the sprayer, killing weeds along lanes and fencerows.

Sandra picked strawberries and raspberries to be frozen or made into jam. Peas had to be picked and podded.

In the cool of the evening, Sandra and Aunt Letty roamed about looking for flowers. They dug a prickly pear cactus and a pincushion cactus and potted them for Aunt Letty to take home.

On Thursdays they all went to band concerts in the grove. Aunt Letty met some old friends. Sandra liked to listen to them tell of childhood days.

The Clark family went each Sunday to the community church. Mrs. Clark was a Sunday school teacher. Mr. Clark and Peggy sang in the choir.

As they drove home from church one Sunday, Aunt Letty said, "I wish I were an artist. I'd paint this landscape. Look at the different shades of green, the red cattle on the hillside, and your white house against the trees."

"The blue sky and white clouds," Sandra added.

"It would make a beautiful picture," Mrs. Clark agreed.

"I know an artist that doesn't like so much green," said Mr. Clark. "He's going to get busy some day soon and change

part of this green to yellow. That's what I want to see."

Sandra looked surprised. "What artist do you know, Dad?"

"Silly!" laughed Peggy. "The artist is right up there." She pointed to the sun.

"He's more of a baker than an artist," Sandra declared. "Peggy looks as if she's done to a turn, with that sunburn and those freckles."

By the first of July the "artist" had done his work. The wheat was golden and heavy-headed. Now Mr. Clark listened anxiously to weather reports. A hard rain could cause much damage to his ripe wheat.

"Day after the Fourth, we'll start harvesting," he said. "I'd better phone the County Agent."

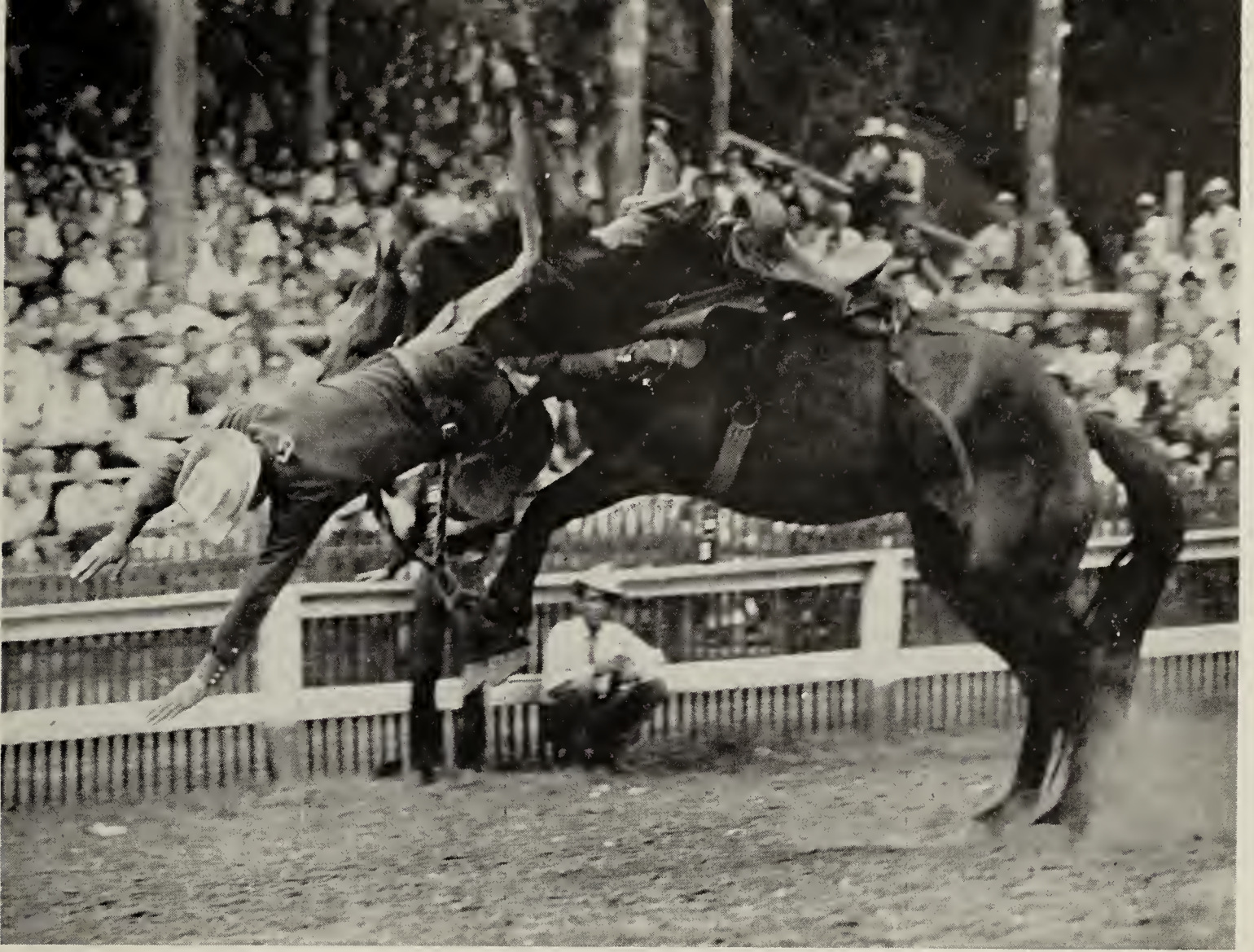
"What does he have to do with it?" asked Aunt Letty.

"He keeps track of the *combines* and who is going to need them. You see, most of us farmers don't own combines. So men come in to do the harvesting. We think it is cheaper and more satisfactory than having so much money tied up in machinery."

The radio began to broadcast daily news of the harvest. It told where combines were needed and how many. Long lines of the big machines came creeping in from the south.







The bucking bronco has won this match, and the cowboy takes a graceful header to the ground. His feet will pull free from the stirrups, which are big and loose. Rodeos are a popular form of entertainment in many western states. They remind people of the days when cattle and cowboys ruled the plains.

### A Fourth of July Celebration

On the Fourth of July the Clarks drove thirty-five miles to North Platte to attend a rodeo.

"I was here once when I was a little girl," Aunt Letty said. "We came in a lumber wagon to see Buffalo Bill's Wild West show. We started at four o'clock in the morning and got here just in time for the afternoon show. That was the most thrilling thing that ever happened to me. Oh, those Indians! I dreamed about them all the way home."

"Indians?" Sandra sat up, surprised.

"In the show," Aunt Letty explained. "Buffalo Bill had dozens of them, all dressed up in war bonnets and feathers.

How they did ride and shoot! And their war whoops—that was what haunted my dreams."

"Buffalo Bill is still the hero of North Platte," Mr. Clark said. "This was his home for years."

Aunt Letty enjoyed the rodeo as much as the girls did. It was exciting to see the cowboys ride bucking broncos and wild steers.

Sandra wanted to stay for the fireworks. But Peggy said, "If I'm going to drive a wheat truck tomorrow, I have to get some rest."

"I have a few last-minute things to do," Mr. Clark said. "The combine may arrive this evening, too. I think we'd better go home."



"Yes, and Maggie will have a hard day tomorrow with extra men to cook for," Aunt Letty said.

"Two men don't make much difference," Mrs. Clark answered.

"Two?" Aunt Letty asked, surprised.

Mr. Clark smiled. "Some combines take only one. Remember, this is the machine age, Aunt Letty."

"*Threshing* crews used to have ten or twelve men," she said. "And we cooked big meals for them over coal stoves."

### The Combine at Work

Everyone was excited next morning. Harvest was going to begin! It was the successful finish of something started the year before. Peggy and her father started for their trucks, singing "Bringing in the Sheaves."

"They really did bring in *sheaves* when I was your age," Aunt Letty told Sandra. "They cut the grain and bound it into sheaves, then stacked it to wait until the thresher could come."

Aunt Letty and Sandra did the breakfast dishes while Mrs. Clark got the roast ready and set the automatic oven. Then they went to the field.

The combine was moving steadily down the field. It cut the wheat, threshed it, and poured streams of grain into a tank on the machine. Mr. Clark drove his truck alongside and loaded it with grain from the tank. Peggy was waiting nearby with another truck. At a signal from the combine men, she would drive her truck up to be loaded.

Mr. Clark emptied his load into one of the bins near the edge of the field. Then he came back to wait his turn.

"They'll haul the grain to be shipped later. Right now the elevators in town are full," Mrs. Clark explained.

"Think of one machine doing all that work!" Aunt Letty exclaimed, eyeing the combine in amazement.

Sandra felt a little sad to see the beauty of the field destroyed by this monster. It marched along cutting off the gay, waving grain and left nothing but stubble.

And yet, the golden stream pouring out of the spout was nice to think about. It meant the new car they wanted . . . the new bathroom fixtures . . . college someday for Peggy and her. The "amber waves of grain" were beautiful, but it was fine to know the bins would soon be filled.

Many times during the two weeks of harvest, Aunt Letty and Sandra went to the fields to watch. Aunt Letty took a number of pictures.

They enjoyed talking to the combine men in the evenings. The men were Canadians. They had taken the combine down into Texas for the early harvest, and were working toward home.

"I'll end up in my own fields," the owner of the combine said. "I raise wheat, too—*spring wheat*, of course. Our winters are too cold to plant wheat in the fall. Our summers are cool enough for it to grow well."

Sandra thought about wheat fields stretching thousands of miles across the country, turning golden slowly from south to north. She liked to think that her father was one of the thousands of farmers who raised food for a hungry world.





Pulled by a tractor, the big combine moves steadily down the field. It cuts the stalks of wheat, threshes the kernels from the straw, and pours the golden grain into a big tank. Mr. Clark is loading his truck with wheat from the tank. Peggy is waiting nearby in another truck.





Aunt Letty used to have fun sliding down a strawstack.

### After the Harvest

"Now I suppose you'll have to rake straw," Aunt Letty said when the harvest was ended. "The combine doesn't pile the straw for you, as the thresher did."

"The combine leaves it on the land right where we want it," Mr. Clark said.

Aunt Letty looked surprised. "Pa used it for feed and bedding for cattle. Bedding for folks, too. Ma filled straw ticks every fall for us children to sleep on. And we had fun sliding down the strawstack."

"We've found it pays better to leave most of the straw on the land. It holds moisture and helps prevent the wind from blowing our soil away," Mr. Clark explained. "Dustbowl days made us look for ways to hold the topsoil in place."

"Those dustbowl days!" Aunt Letty shook her head. "I used to listen to radio reports of those awful 'black blizzards' and wish you were out of it. Remember I wrote and wanted you to come east and get a job?"

Mr. Clark nodded. "I was tempted, but I'm glad I didn't leave. I belong on the land. I wouldn't be happy anywhere else."

"Dad's a fighter," Sandra said. "And Mother fought beside him. She taught school and helped."

"There's one reason some men stayed on the land," Mrs. Clark said. "They were born farmers. They knew that this country had everything a farmer needs—good soil, good climate, fine level land. A farmer couldn't pass up that kind of country any more than a gold miner could pass up a likely-looking rock."

"Soil, climate, level land," Aunt Letty repeated. "But it needed people, too—people who wouldn't give up, who would work for what they wanted."

"Grandpa fought grasshoppers and drought, Dad fought dust. What's left for me to fight?" Peggy asked. "I'm going to be a wheat farmer, too."

"Don't worry, daughter, you'll have battles to fight, no doubt," laughed her father. "How about laying the *alfalfa* low tomorrow, just to keep in practice?"

### DO YOU KNOW?

1. How did Peggy spend the summer days?
2. How does wheat change from the time the little seeds are planted until it is ready to be harvested?
3. How does Mr. Clark get a combine to harvest his wheat?
4. How does a combine work?
5. Where do the combine men live? Where else do they work?
6. What are some of the uses of straw?
7. What does a farmer need to be successful?

### LEARNING BY DOING

1. Try to paint or draw the picture described by Sandra and Aunt Letty.
2. Write some good questions about this story. Exchange questions with one of your classmates.

### BEING A GOOD CITIZEN

What work did the Clark family do to make their community better? What are you doing now for your community? What do you want to do when you are older?



## A Trip to Ogallala

After the second cutting of alfalfa was baled, Mr. Clark said, "I have a little breathing spell now. Peggy and I can take a day off. Where would you like to go, Aunt Letty?"

"I always hankered to see Ogallala," his aunt replied. "Pa told such exciting stories about it."

"What makes Ogallala exciting?" Sandra asked.

"Nothing now," Mr. Clark said. "But remember that movie we saw about the Chisholm Trail? Ogallala was at the end of that trail. It was a lively cowtown in the early days."

"Why did they drive the longhorn cattle all the way from Texas to Nebraska?" Sandra asked.

"To get them to a railroad to ship east," answered Mr. Clark. "Then later, Nebraskans began buying longhorn cattle to stock the ranges around here."

"Our neighbor had some," Aunt Letty said. "They were scary looking animals. Their horns had a spread of almost six feet. I never wanted to get very close to one."

The Chisholm Trail was now a paved highway. Instead of longhorns they saw fat white-faced cattle grazing in pastures.

Aunt Letty looked at the quiet, well-kept streets of Ogallala and sighed. "It's certainly different from the way Pa told about it," she said.

"It grew up and changed its habits, like all western towns," said Mr. Clark.

They drove through Ogallala and on to Kingsley Dam in the North Platte River.



*Ewing Galloway*

This longhorn looks sad and lonely, all by himself on the prairie. Once upon a time, thousands of longhorn cattle roamed the western plains. Now they have been replaced with cattle that give more meat.

Aunt Letty looked out over the vast lake behind the dam. "I guess Nebraskans don't need to sing the song they used to sing. It was to the tune of Beulahland, and went like this:

*O, Nebraskaland, O, Nebraskaland,  
As on the highest hill I stand,  
I look away across the plains  
And wonder why it never rains.*

With all this water to use, it doesn't matter whether it rains or not."

These white-faced cattle are the kind that Mr. Clark raises on his farm. They look fat and well cared for, because they get plenty of hay and corn. They will give lots of good meat when they go to market.





"That's true for the folks with land lower than the ditch," Mr. Clark said. "But there's still plenty of land that isn't irrigated."

"Why don't we get water from here to irrigate with?" Sandra asked.

"Our land lies too high," Mr. Clark explained. "But it doesn't matter. There is plenty of water under the ground that can be brought up by pumps. Nebraska is fortunate in having a great store of underground water."

"See the folks fishing!" Aunt Letty exclaimed. "And the boats and cabins! People can have fun at this lake."

"That's one of the most important purposes these lakes serve," Mr. Clark said. "They make fine recreation areas. The Game Commission keeps them stocked with fish. There is another large lake south of North Platte, and several smaller ones farther on."

The day after the trip to Ogallala, Aunt Letty said she must go home. In vain Sandra coaxed her to stay.

"If you wait a few weeks, we'll make wild plum and chokecherry jelly," Mrs.

Clark said. "Wouldn't that seem like old times?"

"Yes, it would," Aunt Letty agreed. "We made most of our jelly from wild fruits when I was a child. I have never tasted any as good as the chokecherry and buffalo berry jelly I used to eat on Ma's fresh-baked bread. I wish I could stay. But I can't."

"We'll send you some jelly," Mrs. Clark promised.

### Sandra's Roadside Stand

Hot July days slipped into even hotter August ones. Sandra didn't have time to be lonesome for Aunt Letty. There was too much to be done. Plums, chokecherries, wild grapes, and buffalo berries had to be gathered in the canyons and along the river. Even Peggy left off working on the land to help her mother and Sandra with the picking and jelly making.

Then it was time for the roadside stand. Sandra loved arranging the jams and jellies in neat displays to catch the traveler's eye. The vegetables looked

These little speedboats are bouncing along in a race on the lake formed by Kingsley Dam. Man-made lakes like this one are fine recreation areas where people can have fun outdoors.







Sandra's roadside stand keeps her busy in the summertime. Many people stop to buy fresh vegetables and fruit and homemade jams and jellies.

inviting, too. Red tomatoes contrasted with the cool green of cucumbers. There were well-scrubbed potatoes, gay carrots, and odd-shaped squashes. Most popular of all was the sweet corn, fresh from the garden each morning. Later, there would be cantaloupes and watermelons.

The stand was well known to all who traveled that way regularly. Mrs. Clark had started it in the lean years following the drought. Sandra knew some of the travelers well.

She enjoyed talking to them. She asked questions about their parts of the country and answered questions about Nebraska. "I learn as much geography at the stand as I learn in school," Sandra told her mother. "I like the money, too. Let's see, how much did I make this week?"

Money from the stand was divided three ways. One part was set aside for the Lord. It was a thank offering, Mrs. Clark explained, for His bounty in providing the fruits of field and garden. One part went to Mrs. Clark for her

work. The third part was Sandra's for running the stand.

When the time came to buy new clothes for school, Sandra paid for many of them herself.

### DO YOU KNOW?

1. How have Ogallala and the Chisholm Trail changed since the early days?
2. Why were Texas longhorn cattle driven to Nebraska in the early days?
3. What is the purpose of Kingsley Dam?
4. Why can't the Clark family use water from the lake for irrigation?
5. What kinds of recreation do they have at the lake? What would you enjoy most? What do you do when you go to a lake?
6. What kinds of jelly did Mrs. Clark make? What kinds of wild fruit jelly have you eaten?
7. What did Sandra sell in her roadside stand? Why did she enjoy this work?
8. How was money from the stand used?

### LEARNING BY DOING

Pretend to be a traveler who stopped at Sandra's roadside stand. Write a letter to a friend and tell about Sandra, her stand, and what you bought.

### BEING A GOOD CITIZEN

Do you think children should always be paid for their work? Why or why not?





To prepare the ground for planting, early man scratched it with a pointed stick. Later, plows drawn by oxen or horses did this work much better and faster. Compare this old plow with the modern one, below.

## Back to School Again

After school began the first week in September, Sandra had little time for the stand except on Saturdays.

"Wheat! That's what we're going to think about a great deal this fall," Miss Laurance, their teacher, told them. "I'm new to this wheat country. You'll have to tell me all about it. Who learned something about wheat this summer?"

Sandra's hand went up. Many other hands went up, too.

Reports came thick and fast. One boy

had been through the flour mills in Lincoln. Another had gone with his father to an experiment station where different kinds of wheat were being grown for testing.

"Testing for what?" Miss Laurance asked.

"For resistance to drought, frost, disease, and insect pests," the boy answered. "Scientists have developed some good kinds of winter wheat. They are fine for bread flour."

The sharp discs on this modern plow cut through the thick stubble, and the plow blades turn the soil over.







Before early man learned to plant seeds, he gathered wild grain. For hundreds of years after that, sowing seed by hand was the only method of planting wheat. This method is still used in some countries.

"I'll tell how Dad is getting the land ready for planting," thought Sandra.

But somebody else told that. He explained how his father plowed and harrowed, and was now putting fertilizer on the field. Next, he would drill in the seeds.

Sandra remembered about the combine men from Canada. She waved her hand wildly.

Miss Laurance called on Vicki, who held her hand up quietly. And Vicki told about the combine men!

Sandra put her hand down. There was nothing left to tell!

"How about you, Sandra? Don't you have something to tell us?" Miss Laurance asked.

"Why—why—my great-aunt Letty, who hadn't been here for fifty years, was surprised when Dad didn't rake off the straw after the harvest," Sandra began in a rush. Then she settled down to tell the things Dad had explained—about leaving straw on the ground, about strip farming, planting grass on rough land, and windbreaks.

"Those are all ways to keep the topsoil from being blown away," she said. "They are called *soil conservation*."

This grain drill drops seeds from the big box on top. It plants twenty-eight rows of wheat at one time.







Short-handled sickles and long-handled scythes cut the stalks of wheat and left them lying on the ground. The cradle was an improvement on the scythe; it gathered the stalks into bundles as it cut them.

“Very good, Sandra,” Miss Laurance said. “So your aunt had been away for fifty years? She must have seen many changes. In English, we’re going to write stories about summer experiences. Why don’t you write about Aunt Letty’s visit?”

“I’d like to,” Sandra replied.

### Learning More About Wheat

They had wheat problems in arithmetic. They studied the history of wheat. The most fun was the art work.

“We’ll make murals about wheat,” Miss Laurance said. “We’ll show how it is raised now and how it was raised

in ancient times. You know, children, wheat has been very important through the ages. It gives us our daily bread. Let’s show its importance in the murals.”

The project took all their art time for weeks. The murals started with a Stone Age man using a pointed stick to prepare the soil for planting. His wife ground the grain between two stones.

The murals went on to show all implements used in planting and harvesting wheat from earliest days to the great gang-plows and self-propelled combines of today.

Vicki painted one of the most beautiful pictures. It showed the great round



The reaper was the first big improvement in farm machinery for harvesting wheat. A long knife in front cut the stalks. Then the wooden blades of the paddle wheel dropped them on a little platform. The man behind the reaper raked them off into small piles. The other men and women tied the stalks in sheaves. Do you know what the windmill in the background was used for?





Men raked the cut stalks together, tied them in sheaves, and took them to the barnyard for threshing. Women and children picked up any stalks that were left. Wheat was too precious to waste a kernel.

towers of a modern grain elevator shining white against a blue sky.

There were maps showing the wheat-growing areas of the world. It surprised the children to see in how many different lands and climates wheat is raised. It made them feel close to the whole world.

Sandra wrote a little poem about wheat, and shyly gave it to Miss Laurance. The teacher read it to the class. It was called "The Wheat Raisers."

*We're proud of our fathers for raising the wheat,  
Which makes the best food that people can eat.*

*Through frost and drought, bad times and good,  
They work hard raising the nation's food.  
So hats off to them! We'll work with vim  
To help raise the wheat which we all need to eat.*

"It's a nice poem," Miss Laurance said. "You may read it at the Harvest Home Festival."

### Waiting for Rain

Mr. Clark had his wheat planted by the middle of September. Then he waited for rain.

"What was it Aunt Letty sang, about

The next big improvement in machinery for wheat farmers was the binder. It cut the stalks of wheat and tied them in sheaves. Then the sheaves were stacked in the field to wait for threshing.







Wheat spread on the threshing floor was trampled by oxen or beaten with flails to separate the kernels from the straw. Then it was tossed in trays, so that the wind could blow away small pieces of straw.

looking across the plains and wondering why it never rains?" he laughed. His family knew there was worry behind the laughter. Without rain, the wheat would not sprout, and winds would blow the fields bare.

"You depend a lot on the weather, don't you, Dad?" Sandra said.

"Any farmer does," Mr. Clark answered. "Sometimes it's good, sometimes it's bad. But usually we have more good weather than bad."

"What did I tell you?" he exclaimed in great relief a few days later when there was a heavy rain. No one complained about the frost which followed, killing

flowers and vegetables. They were too happy about the rain.

Afterward the weather became warm and bright. Soon a soft green down appeared on the fields. Another crop of wheat was well started!

"October's my favorite month," Sandra declared as the days grew crisp, morning and evening.

Mother quoted a poem about "October's bright blue weather."

"The sky is bright blue, all right," Sandra agreed. "But everything else is yellow. Look at the cottonwoods. And you should see the grove. It will be like a gold palace for the festival."



This is a threshing machine at work. Sheaves brought from the fields are dropped into the thresher. One spout of the threshing machine shoots straw out on a big stack. The other spout pours the kernels of wheat into bags on the truck at the right. Modern combines do the work of both the reaper and the thresher.



# How Flour Is Made



Mortar  
and  
Pestle



Saddlestone

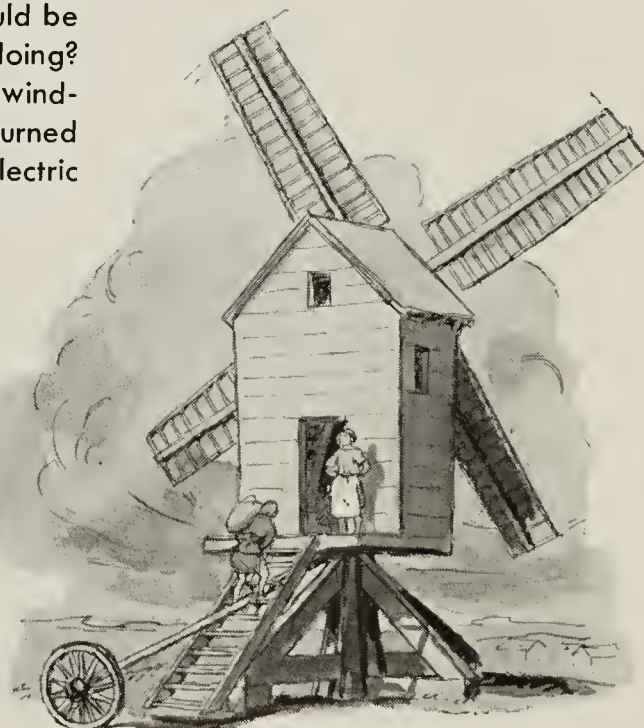


Donkey Mill

1) Pounding grains of wheat in a mortar did not give very fine flour. 2) Rubbing the wheat between a flat stone and a saddle-shaped stone made better flour, but it was back-breaking work. 3) When animal power was used to turn a heavy stone that fitted closely on another, flour could be made better and faster. Can you guess what the two men are doing? 4 and 5) Early communities in this country used either water mills or windmills to make flour. The water wheel and the sails on the windmill turned big flat millstones inside the buildings. 6) A modern mill, using electric power, can make enough flour to feed millions of people.



Water Mill



Windmill

Modern Mill





## The Harvest Home Festival

The Harvest Home Festival had been a yearly event in the community as far back as Mr. Clark could remember. It began with a service at the church where each family brought their Harvest Home offering. This was either money, or produce to be sold.

After a thanksgiving service, everyone went to the grove for a picnic dinner. And such a dinner! The long table fairly groaned with its burden of food.

Later, there was a program. The band played and the glee clubs sang. Sandra read her poem. Her voice trembled and her knees knocked together, but everyone liked it and clapped loudly.

While the County Agent talked on soil conservation, Sandra and Vicki went to look at their little horse chestnut tree.

"It's grown a lot!" Sandra exclaimed, standing close to it. "Last spring it was as tall as I was, and look at it now."

"It's a foot taller than you now," Vicki said. "It's getting nice and branchy, too. Maybe it will have some flowers next year, and some nuts for Skippy."

They heard a distant clapping and knew that the County Agent was through talking.

"Let's hurry back," Sandra said. "He'll be giving out 4-H awards. Maybe Peggy will get something."

They got back in time to see Peggy receive an award for her wheat project.

"What did she do?" Vicki asked.

"She planted ten acres of wheat and harvested it and kept records of the expense," Sandra explained.

"Why did she go to all that work?"

"She's going to be a wheat farmer."

"A girl wheat farmer!" laughed Vicki.

"Dad doesn't think it's funny," Sandra said. "I don't either. Maybe I'll be one myself."

Sandra and Vicki won candy bars in the three-legged race. Then they played games. By the end of the day, Sandra was so tired that when her father said, "Chore time," she went home without complaining.

## DO YOU KNOW?

1. What did Sandra and her classmates learn about wheat during their summer vacation?
2. What are some of the things that are done in an experiment station? How does this work help farmers?
3. What story did the children's murals tell?
4. Who was Sandra talking about in her poem? What do you like best about it?
5. Why does weather make a big difference to a farmer? Does weather ever make a difference in your plans?
6. What happened in the wheat field after the big rain came?
7. What colors could be seen on the Clark farm in October?
8. What was the Harvest Home Festival? What was the program at the festival?
9. Why did Peggy receive a 4-H award?

## LEARNING BY DOING

1. Make up some arithmetic problems about wheat and wheat farming. You might like to trade papers with your classmates and work each other's problems.
2. You might like to make a book that tells the story of wheat. You could draw a picture and write a story for each page. Can you write a poem for the last page?

## BEING A GOOD CITIZEN

Sandra is proud of her father and his work because he is helping other people as well as himself and his family. Name some kinds of workers that help others. How should we feel toward these workers?





Sandra and her friends are having fun in the snow. Have you ever played fox and geese? What games do you play in the snow?

## Winter on the Farm

Mild weather lasted well into November, giving the wheat a good chance to get rooted.

During Thanksgiving week, the children at school set up feeding stations for the birds and squirrels in several parts of the grove. Committees from different rooms were appointed to provide food.

Sandra's class was delighted when a gay red cardinal became a regular boarder at their station; there were chickadees, juncos, and nuthatches, too. Once again, Skippy became tame enough to take peanuts from their hands.

December brought cold weather. The streams froze, and the children could go ice skating.

"I'll tell you what I'd like old Santa to

bring," Mr. Clark said. "A nice warm white blanket."

"White? That's for babies!" Sandra exclaimed.

"Right. I want it for my baby wheat—a good thick spread of snow to keep it warm."

A few days later, he got his wish—six inches of snow. Then what fun there was at school playing fox-and-geese, sledding, snowballing! Christmas came before Sandra realized it was time, and went as quickly, leaving lovely gifts and memories of gay parties.

"Now comes the worst time of the year," Sandra said. "January is always cold, and nothing ever happens between New Year's Day and Valentine's Day."





## The Blizzard

Something happened this year. On the third of January a blizzard struck. The worst one in fifty years, old-timers said. Overnight, roads were blocked with high drifts of snow. Grove School, along with hundreds of others, was closed.

"What fun!" thought Sandra, looking out at the huge drifts.

It was fun for a day or two, but another blizzard followed the first one. An ice storm snapped telephone wires. Each farm, each village was cut off from its neighbors. The radio told of hundreds of travelers stranded in small towns. For days trains couldn't run.



Snow has drifted high around the barns and sheds on this farm. The trees back of the house have kept the snow from drifting high around it. During a blizzard it is dangerous to go from the house to the barn without a rope to hold onto. In the blinding snow and wind, the farmer might lose his way.

Mr. Clark's small herd of cattle was down in the feedlot when the storm struck. He could get there to feed them by holding onto a rope that he strung between the house and the feedlot.

But many people were not so fortunate. Their cattle were out in pastures where the owners could not reach them. Small airplanes scouted the countryside, locating the cattle and telling the owners where they were. But the snow was so deep that the owners could not haul food to them.

Cargo planes began dropping hay to the starving cattle. "Operation Haylift," the Air Force called it.

The Red Cross broadcast, "Signal if you are out of food or need medical attention. If you need food, put one dark blanket on the snow well away from buildings—two blankets if there is sickness."

Mercy missions were flown daily. Canned milk was dropped by the case to families with babies. Penicillin and other medicines were delivered where needed.

Army bulldozers worked twenty-four hours a day trying to open the roads. But the wind filled them up with drifting snow again.

Heavy ice on the telephone wires has pulled the poles to the ground. Towns and farms are cut off from communication with their neighbors. Repairmen will go out in freezing weather to get the telephone lines working again.



"I never saw a storm as bad as this," Mr. Clark said. "We're weathering it fine, with plenty of food and a warm house. I wish everyone was as comfortable. Let's never forget how those boys in the planes are risking their lives watching over us."

### Peggy Needs Help

That night Sandra was wakened by sounds from Peggy's bed across the room. "What—what is it, Peggy?" she asked sleepily.

"Mother!" groaned Peggy. "Get Mother. I—I hurt."

Frightened by Peggy's tone, Sandra hurried to get their mother.

"Probably something you ate," Mrs. Clark said cheerfully.

Sandra fell asleep, thinking that Mother would know what to do for Peggy. She woke later, to hear Peggy screaming with pain. Mother and Dad were both standing by Peggy's bed. For the first time in her life, Sandra saw her mother look helpless.

As soon as dawn came, Mr. Clark put two dark blankets out on the snow. He and Sandra watched for an airplane while Mrs. Clark tried to soothe the suffering Peggy.

About nine o'clock an airplane roared overhead, swung around, and dipped a wing.

Here is "Operation Haylift" in action. The big Air Force airplane is flying low to drop bales of hay to the hungry cattle. Without this food the cattle would starve, because all the grass is covered with snow. This is only one way in which planes of the Air Force and the Navy serve people in time of trouble. Do you know of any other ways they help people?





"They saw our signal!" Mr. Clark exclaimed. "It won't be long now before help comes."

In half an hour Sandra saw a queer whirligig machine land in a field nearby. It was a helicopter. A man with a bag climbed out.

Mr. Clark gave a big sigh of relief. "Run tell Mother the doctor's here, honey. I'll go to meet him."

After examining Peggy, the doctor said, "This is acute appendicitis. We must get her to the hospital at once. Wrap her up warm. We have a stretcher to carry her on. You come too, Mrs. Clark."

"Is your radio working, Mr. Clark? Good. There'll be news this afternoon."

Mr. Clark and Sandra watched in silence as the helicopter bearing Mother and Peggy lifted into the sky and disappeared. Then Mr. Clark put an arm around Sandra's shoulders. "How about stirring up some waffles?" he asked.

Waffles! How could he think of eating when Mother had gone away and Peggy was sick!

He grinned at her look. "Waffles will keep you busy awhile," he said. "The time will pass more quickly."

The time did pass quickly. The waffles stuck and it took both Mr. Clark and Sandra to get the waffle iron cleaned. Before they were through in the kitchen, news came over the radio, "Peggy Clark operated for appendicitis. Condition good."

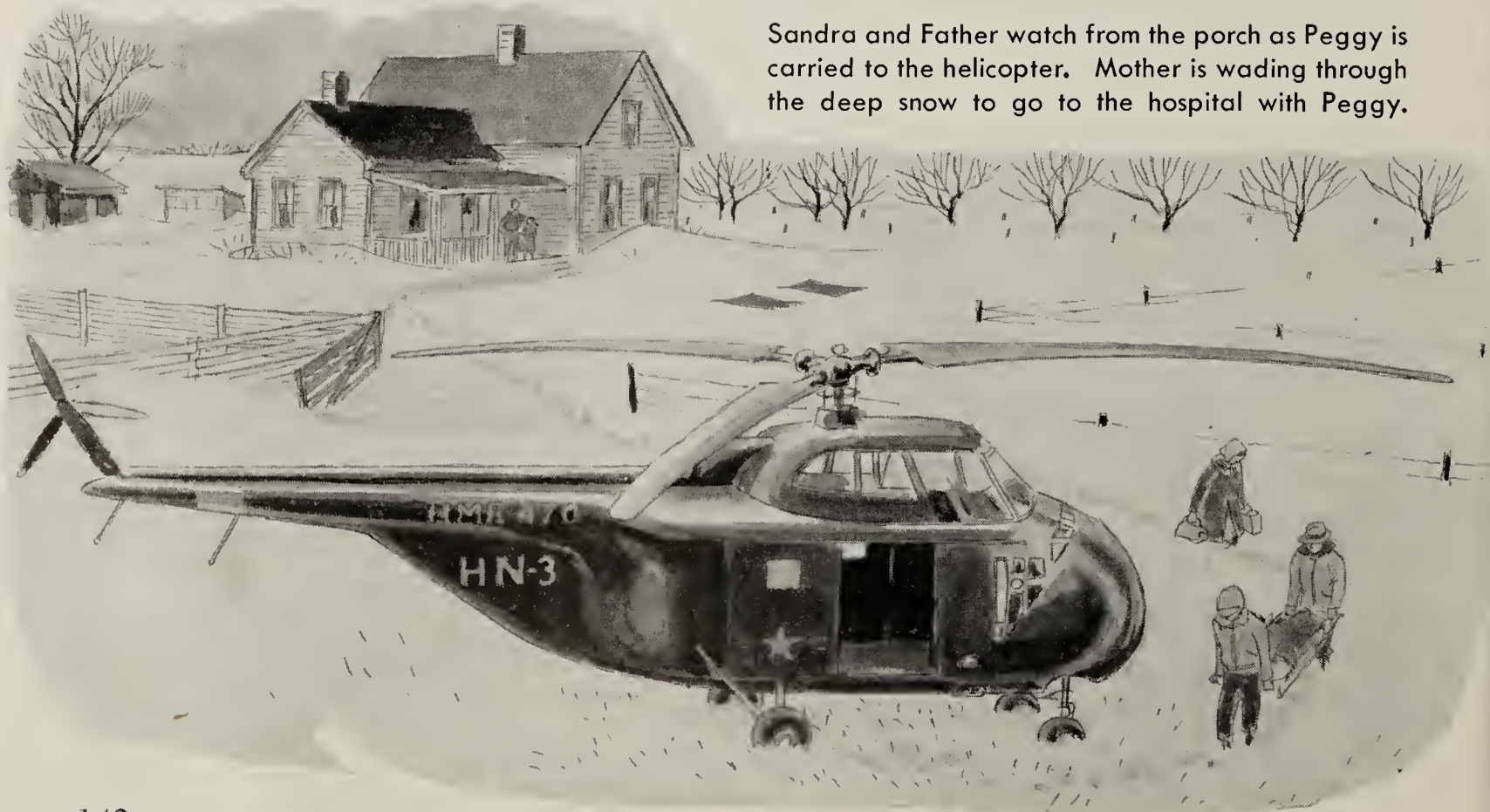
Mr. Clark grabbed Sandra and whirled her around in a joyous dance.

Twice a day hospital reports were given on the radio. Peggy continued to improve.

Sandra and her father did the outdoor work together. Inside, they kept everything neat and clean.

They played checkers by the hour. They played school, taking turns being teacher. Sometimes when the wind

Sandra and Father watch from the porch as Peggy is carried to the helicopter. Mother is wading through the deep snow to go to the hospital with Peggy.





Snow piles high as the snowplow heads into the deep drifts. Its big blades shove the snow aside and leave a clear track in the middle of the road.

didn't blow, they made snow figures in the yard. But most of the time they stayed close to the radio, listening for more news.

After a week, Peggy was released from the hospital. She and her mother stayed with friends in town, waiting for the roads to be opened.

It seemed to Sandra that the snowplows would never come down their lane. But finally one did, the day before Valentine's Day. Their prison doors were open at last!

Sandra and her father drove slowly down the slippery lane onto a highway almost as slippery. They found Grove School open, but many pupils were still absent. Sandra was happy to be back with her friends. The first thing they did was to wade through the deep snow, out to the grove to fill the feeding trays.

When school was over for the day, there was Dad waiting for Sandra. And, O joy! Mother and Peggy were with him. Sandra fairly flew into her mother's outstretched arms.

By the end of February, the snow had melted so much that the Air Force stopped "Operation Haylift." Life became normal once more.

Going down the lane one day early in March, Sandra noticed a patch of green showing through a thin layer of snow in the field. "Wheat!" she thought. "Dad's wheat is up."

That meant spring was coming. Meadow larks would soon be here again.



### DO YOU KNOW?

1. Who were the visitors at the children's feeding stations? Why did they come there in the winter?
2. Why did Mr. Clark want a "white blanket" for his wheat?
3. What was the blizzard like?
4. What is meant by "Operation Haylift"?
5. What were the "mercy missions"? How did they help the Clark family? In what ways did they help other people?
6. How did the radio help the Clarks?
7. How did Mr. Clark and Sandra spend their time while they were alone?
8. What do you think was most interesting about this year in Sandra's life?

### LEARNING BY DOING

1. Pretend to be Sandra and write what you think she told her friends at school when she returned after the storm.
2. You might like to make some pretty, cheerful greeting cards to send to sick people. Use paper and your crayons.

### BEING A GOOD CITIZEN

How can you help sick people or old people when snow keeps them in their homes? What can you do now?



# Living in the Wheat Lands of Australia

You would enjoy knowing Jimmy Doolin. He is eleven years old and all of his life he has lived in the dry wheat lands of Australia.

Jimmy has never gone to a regular school. He has never seen a show on television. For weeks at a time he sees no one except his family.

But Jimmy knows many things. He knows all about raising wheat. He can drive a jeep or a tractor or a huge combine. And one day Jimmy's father let him take the controls of the small family plane as they were flying to visit a neighbor. Jimmy flew as straight and true as an arrow.

Let's visit Jimmy's home in Australia. We can fly from San Francisco to the Hawaiian Islands in the Pacific Ocean. After stopping at several other islands we finally reach Sydney, Australia. Can you find Australia on your world map? Is it north or south of the equator? Do you think Australia is larger or smaller than the United States?



From Sydney our train chugs across a narrow plain, over mountains, and finally reaches the vast farm lands of eastern Australia. As far as we can see, there are wheat fields on this flat or gently rolling land.

We notice at once that the fields of wheat are very large. Many of the fields have a border of trees planted around them. These trees are useful because they help keep the wind from blowing away the precious soil.

## A Land with Little Rain

Jimmy and Mr. Doolin meet us at the railroad station with the jeep. Then we begin a hot, dusty, 14-mile trip between huge fields of wheat.

"Why do the people grow so much wheat in this region?" we ask Mr. Doolin.

"In rainy lands," he answers, "farmers can grow almost any crop. In deserts, no crops will grow unless fields are irrigated. In regions such as this we have some rain but not a lot. The crop that grows best in this kind of region is wheat. Wheat doesn't need too much rain."

"Is it always this hot and dry?" we ask.

"Sometimes it's even hotter," Jimmy answers. "The temperature often gets up to 100 degrees. And it's always dry. We never seem to have enough rain."

This map shows Australia. Which oceans lie next to this continent? Are there more islands between Australia and Asia or between Australia and Antarctica? Is Australia one of the large continents? Look at the world map in your Atlas to find out.





The fat white clouds do not mean rain for this Australian wheat station. The sun-baked ground and the thin grass tell you that not much rain falls here. But the farmers make good use of what water they have.

“However, I don’t depend entirely upon rains for water,” adds Mr. Doolin. “I’ve drilled fourteen wells on my land. These help supply water for some of my fields and for my cattle and sheep.”

### A Wheat Station

Mr. Doolin points to some buildings ahead. “That’s our *station*.” When we ask him what he means, he tells us that the large farms in this area are called stations.

As we come up to the station, we see a great deal of machinery. We count five American tractors, four Australian combines, and four grain trucks, as well as plows and other farm machinery.

On the station there are several houses where Jimmy’s married brothers and sisters live. The houses are all made of wood with corrugated iron roofs. Most of the houses have a wide shaded porch that runs all the way around the house. “With so much hot, sunny weather we really enjoy our porches,” says Mr. Doolin.

Near the houses we can see a number of barns and sheds, including a small building for the plane. The airplane helps to bring the Doolin family close to their neighbors and to the cities, even though the distance in miles may be great. Many of the farmers in Australia have planes.





The dark-blue color on this map of Australia shows where the most rain falls. Where the map is nearly white, very little rain falls. Is Sydney in the rainy part or the desert part of Australia? Jimmy's home lies between the desert and the rainy part.

We decide that a wheat station in Australia is very much like a wheat farm in the United States. Mr. Doolin reminds us that there is one big difference.

"Because we are south of the equator and you are north of it, our seasons are reversed. When you are having winter, we are having summer. Wheat grown in your state of Nebraska is harvested in July, during your summer. Our wheat is harvested in December, during our summer."

### Going to School by Mail

As we return to the house, Jimmy's younger brother asks, "Did you bring my lessons, Dad?"

How happy everyone is to see us! "We haven't had a visitor in two months," says Mrs. Doolin as she bustles about preparing a big dinner for us. Jimmy introduces us to the three dogs that help look after the sheep. One of his older brothers drives us around and shows us the fields of wheat, the cattle and sheep, and Mrs. Doolin's garden, which has a well and irrigation system all its own.

This field of wheat is almost ready for harvest. The farmers are looking at the kernels to see whether the wheat is ripe enough. The tree-covered hills show that not all of this country is flat and bare.







This is a map of a wheat station in Australia. Do you see more than one home? In what ways can people get to the wheat station? Is anything done here besides raising wheat?

"They're in the jeep," he answers. We discover that Mrs. Doolin acts as the teacher for all the children on the station. Each week she sends the children's lessons to a school in Sydney. There they are corrected and then returned. Many children on Australia's wheat stations go to school this way.

### Radios but No Telephones

There are no telephones where the Doolins live. It would cost too much to build a telephone system for so few people.

When families on different stations wish to talk with each other, they use radios that can both send and receive

messages. These radios also bring help when there is sickness or an accident.

One day, Mr. Doolin hurried to the sending set of the radio. He turned the dials and in a few minutes he was in contact with Dubbo, the nearest city.

"One of my boys broke his arm a few minutes ago. We need a doctor. Can the doctor come to the station, or shall we fly the boy to the city?"

Soon the reply came. "The doctor is at Mudgee. I'll talk with him at once."

Easier said than done. The doctor had left Mudgee and gone to a wheat station. With the help of friendly neighbors, however, and the use of the radio, the doctor was told of the accident.



Four hours after the accident happened, a small airplane circled the Doolin station. One minute later the plane was taxiing down the landing strip. By the time it stopped, members of the Doolin family were out to greet the doctor. In half an hour he had set the broken arm.

The doctor spent the night at the Doolin station. He told them all the news he had learned from visiting their neighbors.

He took off early the next morning. The Doolins may not see him again for several months but they know the radio and the airplane can bring him in a hurry if he is needed.

The radio is valuable in many other ways. It brings the Doolins much entertainment and news of the outside world. On Sunday mornings they gather around the radio and listen to the Sunday School lesson and the church sermon.

## Wheat Is King

Wheat is "king" among the crops that are grown in Australia. It is the chief crop on more than 60,000 farms. Each year many shiploads of wheat are sent to other countries. Most of it goes to England. When the ships return to Australia, they carry automobiles, cloth, machinery, and many other products made in the factories of England.

The wheat farmers in Australia owe much to a man named William Farrar. He worked for ten years to produce a wheat that would grow well on land that receives little rain. Today there are thousands of wheat stations on the drier lands because of the discovery that Mr. Farrar made.

Another discovery that has helped the wheat farmers is a new and better fertilizer. When this new fertilizer is mixed

India is another country that raises a great deal of wheat, but never enough to feed its millions of people. Use of farm machinery, such as this tractor pulling a small plow, will help them to raise larger crops.







This map shows where the wheat lands of the world are located. Name the continents that have a great deal of wheat land. Notice that wheat is raised both north and south of the equator, but not next to it.

with the worn-out soil, the wheat seems to pop from the ground.

In the old days horses and men did most of the hard work on the farms. To-day plowing the fields and planting and harvesting the wheat is done with tractors and other new machines that make the work much easier.

Australian wheat farmers often like to raise sheep and cattle as well as wheat. In this way they can keep busy all through the year. They also have several products to sell, instead of only one.

### Wheat Communities Near and Far

We have now visited wheat farms in Nebraska and Australia. As we continue our social studies, we will discover and explore wheat farms in many other lands. We can be sure that in countries where the land is almost flat, where the summers are hot, and where there is enough rain to grow grass, we are likely to find wheat farms.

### DO YOU KNOW?

1. Where does Jimmy Doolin live? What are some of the things he knows?
2. How would you travel from your own home to Jimmy's?
3. What does Mr. Doolin call his farm? Why does he grow wheat?
4. Where do his machines come from?
5. What is the big difference between wheat farms in Nebraska and Australia?
6. How does Jimmy go to school by mail?
7. Why don't the Doolins have a telephone?
8. What discoveries have helped wheat farmers in Australia?
9. What animals do these farmers raise?

### LEARNING BY DOING

1. On a map of the world, trace the route you would take to go from Nebraska to Australia.
2. Pretend that you are riding in the Doolin family airplane. Write a story about all that you see. Tell what is the same and what is different from the way it is here.

### BEING A GOOD CITIZEN

Patriots, inventors, teachers, and other great men have done many things which help us in our daily lives. How can we show our appreciation for what they did?



# A New Look at Farming Communities

## THINGS TO TALK ABOUT

1. How do farmers help everyone everywhere?
2. What kind of climate is best for wheat?
3. Why doesn't every farmer raise all kinds of crops on his farm?
4. What different ways of irrigating farms have you read about in these stories? Do you know of other ways?
5. Why should we be thankful to farmers' families as well as to farmers?
6. Try to locate Sandra's and Jimmy's communities on a globe. On which continents are they? Are they on the same side of the equator? Are they close together or far apart?

## CHECKING YOUR SKILLS

"How well do I read?" is a question we should all ask ourselves from time to time. Even good readers can improve if they try.

There are many ways in which we can help ourselves. One of them is to read an entire story without stopping. We should read as fast as we can and still understand.

When we have finished, we should think about what we have read. We should ask ourselves what the most important things in the story are. We should read again to see if we missed anything the first time.

Use these six steps to find the meaning of a word you do not understand.

1. Try to sound the word.
2. Read to the end of the sentence. Try to think of a word that could be used in place of the word you do not understand.
3. Look at the pictures to see if they will help you.
4. Look in your "Little Dictionary of Geographical Words," page 22.
5. Look in your big dictionary.
6. If you still don't know the word, write it on a paper and ask your teacher.

## BEING A GOOD CITIZEN

*Conservation* is a long word that means taking care of soil, trees, animals, and other things in nature. How do Mr. Doolin and Mr. Clark practice conservation? Think how gardens,

fruit trees, and foods of all kinds can be protected; then tell how *you* can practice conservation.

## BOOKS TO ENJOY

Barlow, Ruth C., *Fun at Happy Acres*. The stories and pictures tell about farm life.

Black, Mary M., *Summerfield Farm*. About farm life and farm animals.

Brock, Emma L., *Uncle Bennie Goes Visiting*. Uncle Bennie likes the farm so well that he decides to stay.

Bulla, Clyde R., *The Donkey Cart*. A summer with David and Linda on a farm.

Chandler, Edna, *Cowboy Sam and the Rodeo*. Tells all about a rodeo.

Coatsworth, Elizabeth J., *The Little Haymakers*. How a boy trained a pair of steers to be good workers.

Elting, Mary, *Who Lives on the Farm?* Easy stories and many pictures of farm animals.

Holling, Holling C., *Tree in the Trail*. Story of a cottonwood tree. Not easy.

Keeler, Katherine, *Winter Comes to Meadow Brook Farm*. Life on Farmer Allen's farm during a severe winter.

La Farge, Oliver, *The Mother Ditch*. Story of irrigation in New Mexico.

Lattimore, Eleanor F., *Holly in the Snow*. Christmas on a New England farm.

MacIntyre, Elisabeth, *Susan Who Lives in Australia*. Simple story of Susan who lives on a station, told in rhyme.

Martinson, Helen and Melvin, *Grandpa's Farm*. A little girl learns about farm life.

Norling, Jo and Ernest, *The First Book of Water*. How water travels, helps people, and provides fun.

Norling, Jo and Ernest, *Pogo's Farm Adventure; A Story of Soil*. John and Pogo take part in many farm activities.

Paull, Grace A., *Snowed-In Hill*. A week on a farm during a winter snowstorm.

Petersham, Maud and Miska, *The Story Book of Foods from the Field*. Stories of wheat, corn, rice, and sugar.

Work, R. O., *Mr. Dawson Had a Farm*. Humorous stories about Mr. Dawson and his work.

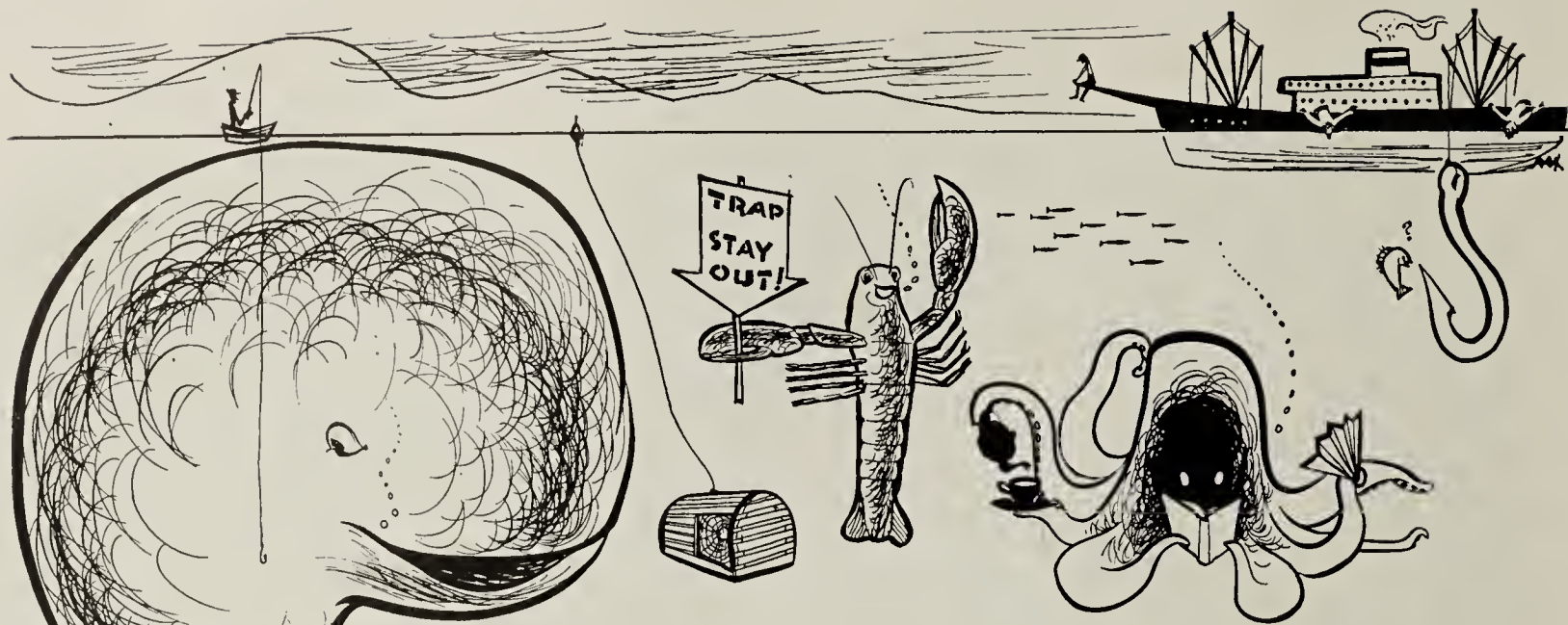




# Chris of Courage Cove

UNIT 4





## Living in a Fishing Community

Fishing is an important business in many countries around the world. Thousands of men are busy every day catching fish for us to eat.

On the coast of Maine is a little fishing village. We have named it Courage Cove. Chris lives in Courage Cove and his father is a fisherman. In summer, when school is out, Chris and his pal go fishing. You will enjoy reading about their adventures. Can you locate Courage Cove on a map in your Atlas?

Fishing is also very important to the people of Norway. The world map in your Atlas will help you understand why. Is much of Norway's land mountainous? Do you think it would be good for farming? What ocean does Norway face?

The stories in this unit should help you answer the question—Would I like to live in a fishing community?

### I WONDER

I wonder where the fish come from that are eaten in our community each day.

I wonder if fish are used for something besides food.

I wonder what lobsters, oysters, clams, and other sea foods taste like.

I wonder why fishing is important in Maine and in Norway.

I wonder what it would be like to help catch a whale.

### WORDS WE NEED TO KNOW

<i>anchor</i>	<i>clam</i>	<i>foghorn</i>	<i>sand bar</i>
<i>bay</i>	<i>Coast Guard</i>	<i>lighthouse</i>	<i>school (of fish)</i>
<i>blubber</i>	<i>cove</i>	<i>lobster</i>	<i>tide</i>
<i>buoy</i>	<i>fiord</i>	<i>mooring</i>	<i>wharf</i>







Chris's mouth is watering for a piece of hot blueberry pie. But Aunt Emmie says, "Not until suppertime."

## A Village by the Sea

The minute Chris opened the door, he smelled it—one of the best smells in all the world to a hungry Maine schoolboy.

"Yummy! Hot blueberry pie!" cried Chris. "Just one little piece, Aunt Emmie, please? Cut me a piece where the juice is running out, so it won't get on anything."

"Not a bite till supper," said Aunt Emmie, making believe she was cross. She took another pie from the oven and placed it near the open window to cool beside the first one. Then she stood up straight, brushed back her gray hair, and looked at the golden-brown pies.

"They aren't so bad, if I do say it myself," she said. "I used the last blueberries in the deep freeze, Chris. Your

Ma and I are counting on you to pick a lot of berries this summer."

Chris grinned. "I'll promise you five quarts of berries next month for one piece of pie right now." But Aunt Emmie shook her head.

The boy sighed. Taking one long last smell, he turned to leave the kitchen. Just then his mother came in, carrying a covered basket.

"You're home early, Chris," she said, setting the basket on the kitchen table.

"Sure. Last day of school, till fall. I passed."

Like most fishermen's wives, Mrs. Pruitt didn't speak more than she had to. "Good," was all she said. But her sharp blue eyes gave him a quick, happy



look. "Please take the *lobsters* out of the basket, and put them in the sink."

"How are you going to cook them, Ma?" Chris asked, as he lifted out the greenish-black lobsters.

"I'm going to boil them, take out the meat, and make a stew," she answered.

"I'll help dig out the meat, Ma, if you'll let me chew the legs," offered Chris.

"All right," his mother replied. "But right now I want you to go over to the Webb sisters' place for me. Miss Hope phoned this morning. They have finished setting out their flower garden, and they have some plants left over for me. Take the basket I brought the lobsters in. And you'll find some new doughnuts in the doughnut jar. Better take some with you, to eat on the way."

Chris put a doughnut in his pocket and took a big bite from a second one. Then he got on his bicycle and started up the driveway to the road. When he came to a big rock ledge at the right of the highway, he parked his bike at the foot of the ledge. He climbed to the top and sat down. This was one of his favorite places for looking at the ocean.

Down below him lay Courage Cove, with tiny waves sparkling in the June sunshine. Seal Island stretched across the mouth of the *cove*, protecting the little harbor. Beyond was the ocean, bright and blue, as far as he could see.

### The Story of Courage Cove

The boy remembered a day the year before when his grandfather, Jonathan Pruitt, had sat beside him on this ledge. The old man had told him how Courage Cove was found and named.

"The men on the ship were just about worn out," he had said. "They were almost out of food and water. They had been searching for a safe place to land along this rocky coast. A storm, driven by a northeast wind, was coming up fast. They knew they had to find a harbor quickly.

"Right outside Seal Island there, the mate—that was the first Jonathan Pruitt, my great-great-grandfather—called out to the captain, 'Look over there, sir. There's an opening between the island and the shore. That might be a safe *bay*.'

"The captain looked. 'You never can tell,' he said, 'about a small opening like that. There may be a *sand bar* across it. But we'd better take a chance. The storm is right on us. Courage, men! We'll make a run for it.'

"They steered their ship between the island and the shore, and there was the prettiest little cove you'd ever hope to see. Not a sand bar, not a rock. Deep water close to shore, and protected on all sides from storm winds. It's been called Courage Cove ever since."

### A New England Gift Shop

Suddenly Chris remembered his errand. He climbed down to the highway, got his bike, and rode on to the Webb house.

Everything about the Webb sisters' place was neat and white—the house itself and the wooden fence around the yard. The well-kept flower bed in the yard had a circle of white stones around it. A big ship's *anchor*, painted white and covered with climbing plants, leaned





Wouldn't it be fun to spend several weeks here? What do you see in the picture that tells you that some people come here to have fun? But there is also work at Courage Cove. Name the things you can see in the picture which have something to do with fishing. What use is made of the island?

against the cottage wall. In the window was a row of pink and white shells. Near the door hung a sign, GIFT SHOP.

The Webb sisters had lived here all their lives. Miss Faith was short and fat and jolly. Miss Hope was tall and thin and quiet.

All during the fall, winter, and spring, the sisters spent their days making things to sell. They filled small pillows with the sweet-smelling tips from the branches of evergreen trees, which grew in the forest nearby. On each pillow they sewed a picture of a pine tree. They



made rugs with pictures of boats on them. They wove mats for tables, and handbags.

In the fall they paid Chris and other boys to gather bayberries for them. With the wax from these berries, they made bayberry candles, which smelled good when they burned.

In the late spring the sisters picked wild strawberries, which they made into jam and jelly to fill many little jars.

When summer came, the Webb sisters turned the best room of their house into a gift shop. Here the summer visitors could buy presents to take back to their friends in the city.

Miss Faith came to the door when Chris knocked. She took his basket and placed the plants in it, with the soil still about their roots. While he waited, Chris looked at the clipper-ship model hanging over the fireplace. It was a model of the ship that had belonged to the grandfather of the Webb sisters, a

The old clipper ships were the fastest sailing ships ever built. Some of the most famous ones were built in Maine shipyards.



hundred years ago. Chris never got tired of looking at its graceful lines.

"Here you are, Chris," Miss Faith said. "I'm glad there is some way I can pay your mother back for the fish and lobsters she sends to us. And here are some hot cookies for you, which my sister just baked."

"Thanks, Miss Faith," said Chris. "Ma is always glad to send you fish and lobsters." He picked up the basket, got on his bike, and rode away.

### DO YOU KNOW?

1. Was Aunt Emmie really cross with Chris?
2. What do you think is the best smell in the world?
3. How did Courage Cove look from the ledge of rocks where Chris sat?
4. How was Courage Cove found and named?
5. What did the Webb sisters make to sell in their gift shop?
6. What kind of neighbors are the people in Courage Cove?
7. What things tell you that Chris is a polite boy?

### LEARNING BY DOING

1. Find Maine, the state where Chris lives, on your map of the United States.
2. Can you and your classmates show Courage Cove, Seal Island, and the ocean in a sandbox? You can use a mirror or a piece of glass with blue paper under it for the water. Later you may wish to add the village of Courage Cove.
3. It would be fun to play this story. The scenes could be: *Chris at Home*, *Grandfather's Story of Courage Cove*, and *Chris at the Webb Sisters'*. The people who take the parts may read from the book if they wish.

### BEING A GOOD CITIZEN

Do you think Chris liked to do errands for his mother? What do you say when you are asked to do errands? Whom do you help in this way? What other people might you help?



## At Home with the Pruitts

A few hours later, the Pruitt family was finishing supper. At the head of the table sat Seth Pruitt, Chris's father. His face was browned by years of ocean wind and bright sun. His hands were rough and hard from his work on sea and shore.

Across the table from him sat Mrs. Pruitt, in a clean white apron. On one side was Aunt Emmie, and on the other side sat Chris and his sixteen-year-old sister, Flora.

It had been a good supper. The stew, hot and steaming, had been full of lobster meat. Everyone had a big cut of blueberry pie. Chris and his father had divided the last piece.

They sat without talking while the six o'clock news came on. Then Mr. Pruitt turned off the radio. He looked at Chris with a smile. "So another school year is done," he said. "What are you going to do this summer?"

"I've got lots of plans, Dad," replied Chris. "I'm going to fish the ten lobster traps I made. I'm glad you gave me an outboard motor for Christmas. Now I won't have to row the boat every time I go out to my traps."

"I'd feel safer if you didn't go out in your boat alone," put in Mrs. Pruitt.

"Dave Mitchell will go with me, Ma," Chris said. "He and his folks will get here in about ten days, as soon as his school closes. He's just as good a swimmer as I am, so we'll be all right."

"Dave and I plan to make lots of money this summer," he continued. "We'll do errands for summer people. We'll pick



Nearly every fishing village has an old-time sea captain who can tell exciting tales of adventures at sea.

blueberries to sell. And we'll still have plenty of time for fun."

"When are we going to have a television set, Dad?" asked Flora.

"That depends on fisherman's luck," he replied. "Lots of lobsters, a good price, no boat trouble—and we'll have a television set. Bad luck—then we'll have to wait."

"Three of us high school girls are going to wait on tables at the restaurant this summer," Flora said. "I'll put in \$50 from my summer pay."

"I'll put in another \$50 when the summer people buy the rugs I made last winter," offered Aunt Emmie.

"Put me down for \$25," Chris said. "I can make that much for my share."

"I can handle the rest," agreed Mr. Pruitt, "if good luck holds."

"I'll keep you well fed, I'll mend your clothes, and I'll have a clean house for you to come home to," Mrs. Pruitt promised.



When the evening was over, Chris went up to his room. The walls were covered with pictures of ships and boats. There were boats for work and boats for play, fighting ships and ships to carry freight, sailing ships and steamships, old-time boats and the very newest boats. Some pictures he had cut from magazines. Others he had made at school.

Chris liked to remember the stories his grandfather had told him about early days on the coast of Maine. The first permanent settlers had come there from Massachusetts, soon after the Pilgrims landed at Plymouth Rock. In most places along the coast of Maine the land is too thin and rocky for big farms. Some men became fishermen. Others were sailors, who traveled to faraway places with shiploads of dried and salted fish from Maine fishing villages.

Many men built boats from the tall pine trees and strong oak trees in the forests. Maine clipper ships, with their square old-time sails, could carry big loads and sail very fast. They went to

China for tea. They went to England for steel tools and fancy clothes.

Years later, steamships took the place of the clipper ships. But always the men on the coast of Maine built fishing boats, large and small.

### DO YOU KNOW?

1. Who are the members of the Pruitt family? What do you know about each one?
2. What were Chris's plans for the summer? What would you like to do with him?
3. How did the family plan together to pay for a television set?
4. What did Chris have in his room? What do you think he will be when he grows up?
5. Why didn't the first settlers in Maine become farmers? What did they do?
6. Why did shipbuilding become important in Maine?

### LEARNING BY DOING

You might like to draw ships and collect pictures of ships as Chris did. Learn what you can about each kind.

### BEING A GOOD CITIZEN

Do you think the Pruitts will get their television set? Why? What can you do to help make your family happy? Do we always need money to make others happy?



Work on this boat begins with strong wooden ribs. Boats must be light enough to float in the water, and strong enough to withstand the heavy waves.





Chris and Dave like to sit on the wharf and watch the motorboats and sailboats in the harbor.

## Summer Adventures of Chris and Dave

The months of July and August bring many thousands of summer visitors to the coast of Maine. They come from towns and cities all over the country, but mostly from the northeastern states. They like the cool sea winds, and the salt water for swimming and boating. They like the people who live on the coast, and the quiet, slower way of life.

Some visitors come for a day or a week of vacation. They live at a hotel or have a room at a boarding house or in a home. Some families rent a cottage for a month of vacation. A few summer visitors own their own cottages. The father and mother bring the children to the cottage early in the summer, and they stay until school opens in the fall. Part of the time

the father must go back to his work in the city, but he spends week ends with his family at the cottage.

Many summer people come to Courage Cove. Then the little fishing village becomes a busy place. Hotels and cottages, which have been closed for nine months, are open again. The streets are full of automobiles. Sailboats and motorboats dash about the harbor. Men, women, and children crowd the stores.

Mr. and Mrs. George Mitchell were summer people who owned a cottage near the Pruitt home. They had a son, David, and two small girls. Mr. Mitchell had a clothing store in Philadelphia. Dave Mitchell and Chris were good friends.





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The picture at the left shows how the shore looks at low tide. The sea has moved out, leaving the beach bare; the lobster pier seems up in the air, perched on stilts. The picture at the right shows the same scene six hours later, at high tide. How is it different from the low-tide picture?

## Lobster Fishing

Early one July morning Chris and Dave met on the shore at the Pruitt house. They were going out to get lobsters.

The water in Courage Cove was as smooth as oil. There was no wind, and the tide was going out. The boys had to pull the skiff a long way to get it down to the water.

They got on board, started the motor, and headed for Seal Island. Overhead a sea gull flew high into the air with a clamshell in his bill. He dropped it on the rocks and then flew down to eat the meat from the broken shell.

Chris stopped the motor as they came to a block of wood painted red, with a white cross on it. From this red and white *buoy* a line went down to the lobster trap on the bottom. Chris and Dave pulled hard on the line to bring the trap up to the side of the boat. Then they lifted it into the boat and looked inside.

There were three lobsters in the trap. They had greenish-black bodies, two big claws, and eight small legs. Their two

long feelers waved in the air, and their eyes shone like black beads.

"Three of them! Good!" cried Dave. But Chris shook his head. As he took out each lobster, he measured its back with his rule. He threw the first one back into the water.

"Too small," he said. He threw the second lobster back, too. But the third one was the right size to keep.

Chris pushed a small piece of wood into the joint of each claw, so that it could not be opened. He placed the lobster under some canvas, to keep it out of the hot sun. Then he put two frozen herring into the bag of net that held the bait, and pushed the trap into the water again.

In the next trap the boys found two lobsters. In another they found a mother lobster. Under her tail were thousands of tiny brown eggs. Chris picked her up carefully and dropped her into the water. "We always put mother lobsters back," he explained, "so that their eggs will live."

By the time the boys had made the rounds of Chris's ten traps, they had



eleven lobsters. They took them back to Courage Cove, and Chris put them in a big wooden box that was anchored near his father's *mooring*. The bottom, top, and sides of the box were full of holes, through which the sea water could flow. It carried into the box the tiny sea animals that lobsters eat. So the lobsters could stay alive until the Pruitts wanted to use them or sell them.

Every two weeks a big lobster boat came to Courage Cove. The captain bought all the lobsters which the fishermen wished to sell. The lobsters were put into a large tank of sea water on the boat, where they stayed alive until they reached the city markets.

### Digging Clams

As the boys finished putting their lobsters away, Dave said, "The *tide* is almost out. How about digging some *clams* now?"

"All right," replied Chris. "It's the time of the new moon, and the tide will

go way out. I'll step up to the house, get my basket and hoe, and bring my father's hoe for you."

The oceans of the world are pulled by the moon. The moving of the waters is called the tide. For about six hours the sea moves slowly out from the shore. It leaves rocks, seaweed, sand, and sea animals lying in the sun. Boats floating near shore may be left sitting in the mud. Parts of old wrecked ships may sometimes be seen.

Then for the next six hours the tide moves slowly back again. The water covers everything, nearly to the top of the shore line.

There are two times each month when the pull of the moon is stronger. This happens when the moon is new and thin, and again when it is full. At these times the tide comes much higher up on the shore, and it goes out much farther over the rocks and sand. *High tide* mark is then several feet above *low tide* mark. If great storms come when the moon is

Clam fishing is different from other kinds of fishing. Fishermen DIG for clams. Some clams burrow into the sand along the seacoast. Half the time, when the tide is in, their homes are covered with water. But when the tide goes out, sharp-eyed fishermen can see where the clams live and dig them out.





new or full, the tide sometimes comes up above the shore line. Waves break into the cottages and wreck the *wharves*.

To dig clams, the boys went out to Seal Island. As they pulled the skiff up on the shore, Chris said, "We must dig over on the seaward side of the island. There are clams here on the Courage Cove side, but they are not good to eat. The water is not clean where many people live. But on the ocean side the tides keep the water clean."

Close to the water's edge Chris and Dave found tiny holes in the sand. Sometimes a little squirt of water came up from a hole. This marked the place where a clam lived. Each boy dug carefully with a hoe in the sand, mud, and small rocks. From four to eight inches down, they found a clam. Then they moved on and found another and another. It was slow, hard work. Many of the clams were too small to keep.

Soon the tide turned. It began coming in again, and the boys felt the water lap-

ping at their feet. They moved higher up the shore, and the tide followed them. The southwest wind began to rise, and the waves grew larger. Overhead, the sea gulls swooped and screamed.

In an hour Chris's basket was full of clams. The boys waded out into the water and washed the mud from the clams, the basket, and the hoes. When they went back to the skiff, the tide was almost up to it. So it was easy to push it into the water again.

"You take part of the clams to your mother, Dave," said Chris, "and I'll take part to mine. We can sell the rest at some cottage when we get home."

### The Clambake

One Saturday morning in July, Mr. Mitchell arrived by airplane from Philadelphia. His family and Chris met him at the Portland airport.

Mr. Pruitt has put clams and lobsters on the hot rocks. Now he is covering the food with wet seaweed so that it will cook slowly.







Chris and Dave have finished eating their lobsters. Now Chris is ready to throw a scrap to the hungry sea gull that is swooping down.

"We have something good planned for tonight," said David, as they were driving back to Courage Cove. "Mr. Pruitt is going to make a *clambake* for our two families."

"That sounds good to me," said Mr. Mitchell. "Where will we get the clams? And will there be lobsters, too?"

"We are buying the clams and lobsters from Chris and Dave," his wife replied. "They are real fishermen."

About six o'clock that evening the Pruitts and the Mitchells went to the shore near the Mitchell cottage. The tide was halfway in. The west wind had stopped blowing, and there was not a cloud in the sky. A few fast motorboats were cutting the waters of the harbor. But the sailboats belonging to the summer people were tied at their moorings, with their sails taken down.

Chris and Dave had already gathered a big pile of dry wood, which they had

found along the shore. Mr. Pruitt laid flat rocks side by side, to make a small platform. On this he built a hot fire with the dry wood.

After the fire had died down, Mr. Pruitt brushed the coals from the rocks, which were now very, very hot. He placed the clams on the rocks and covered them with wet seaweed. Then he piled a dozen lobsters on and put more seaweed on top of everything. Hot steam rose from the pile. It smelled good.

While waiting for the clams and lobsters to cook, Chris and Dave wandered along the shore. They threw sticks into the water and tried to hit them with stones. They picked up beautiful sea-shells for David's shell collection. It seemed a long time before Mr. Pruitt called, "Come and get it!"





Some of the lobsters caught are kept in tanks at the water front. When people come to buy them, the big green lobsters are pulled out, alive and squirming.



Along the Maine coast there are places where visitors can eat lobster dinner out in the open air. The best way to eat lobsters is with your fingers.

The boys hurried back to the clam-bake. Seth Pruitt had removed the top layer of seaweed, and there were the lobsters, bright red from the cooking. When the rest of the seaweed was taken off, they could see the clams, ready to eat. Their shells had opened as they cooked.

Everyone filled a paper plate with clams and ate as many as he wanted. Everyone had a lobster, too. They broke the big claws with rocks, and they used forks to dig the meat from the tails. Sea gulls flew by for scraps of food.

As it grew dark, the sea birds flew away to the far islands, where they spent the night. The *lighthouse* on Seal Island sent its white light out across the ocean. At the mouth of Courage Cove a bell buoy was ringing softly.

Slowly the tide rose higher and higher. The moon came up. It was peaceful, listening to the waves in the moonlight. Flora played her accordion and sang "Harbor Lights." Then they all sang old songs until it was time to go home.

### DO YOU KNOW?

1. Why do many people go to Maine in the summer? Where do they live while they are there?
2. How does the village of Courage Cove change after the summer people come?
3. Why is Chris always glad when the Mitchells come to Courage Cove?
4. How are lobsters caught? What do they look like?
5. Why did Chris throw some lobsters back?
6. What is meant by tides? How does the shore look at high tide? At low tide?
7. Where did the boys get clams? How did they get them? How were the clams cooked?

### LEARNING BY DOING

1. Some of the books listed on page 190 tell about animals that live in shells. Try to get one of the books and learn all you can about these animals and their shells.
2. *Sea food* is what we call fish and other animals of the sea that we use for food. How many kinds of sea food can you name? Ask your grocer what kinds he has in his store.

### BEING A GOOD CITIZEN

How did Chris practice conservation when he was taking lobsters from his traps? How can you practice it when you go fishing? When you pick fruit? When you buy food?



## Along the Water Front

Late in July there came a big storm with a strong northeast wind, fog, and rain. Giant waves pounded on the seaward side of Seal Island. Their roar could be heard for miles. Even in Courage Cove the waves were big.

The island *foghorn* blew loudly once a minute, telling all sailors, "This is Courage Cove." Each foghorn along the coast has its own special timing, so that those who hear it may know which horn it is.

All the Courage Cove boats were lying safely at their moorings. Three fishing boats from other villages had come into the harbor to anchor, to get away from the storm.

Chris and Dave, wearing rubber boots, coats, and hats, went to Reed's Boat Shop to watch the men at work. A 25-foot lobster boat was nearly finished. Two men were setting the brass propeller in place at the stern. Others were painting her sides white. Some other workmen were putting boards on the ribs of a 15-foot sailing boat. All about were piles of sawdust and small pieces of wood. They smelled good.

The boys moved on to Gray's Repair Shop. Here a 50-foot fishing boat had been pulled up on a railroad track until it was out of the water and under the roof of the shop. Men were scraping off the seaweed and barnacles that covered the bottom of the boat. Up on the deck two carpenters were repairing a broken rail.

The big repair shop was almost empty. But in the winter it would be full of the

boats of summer people. They could be stored away from the snow and freezing rain, and repairs could be made if needed.

Chris and Dave went next to Blake's store for ice cream cones. As they ate them, they wandered about the store, looking at the things for sale. Groceries and meat were in one part. There were men's work clothes, ropes and fishlines, paints and hardware.

Outside again, they went to the wharf of the Courage Cove Freezer. In spite of the wind and the rain, a big fishing boat was being unloaded there. A chain with little baskets on it carried the fish to men on the wharf. They sorted out the cod and haddock and sea perch, and sent each kind of fish to its own place.

Other men then took out the insides of the fish and threw them to the screaming sea gulls. They cut off the fish heads and saved them for lobster bait. Then the fish were passed along to tables where the meat was cut from the bones. This was packed in boxes by women.

The box of fish has been hauled up from the hold of a boat. The fish are dumped into a tank and carried into the packing plant by a moving platform. Notice the sprays of water that wash them as they go up.







A rainy day can't keep Chris and Dave from having fun. They like to be out even in the rain.

Jonathan Pruitt and his wife lived in a big old house on a hill. In the middle of the roof there was a small room called a cupola, with windows on every side. From the cupola one could look far out to sea. In the old days, wives and mothers used to watch for the ships coming home from England or China.

Chris and Dave took off their rubber boots at the front door. They found Grandpa and Grandma doing a jigsaw puzzle in front of the fireplace. While the boys were eating a plate of cookies, Chris said, "Dave would like to hear how you used to go fishing when you were a boy."

"That was a long time ago," Grandpa said. "Times have changed. Seems to me that fishermen have it easy today, with their motors and their ship-to-shore telephones. But fisherman's luck is just the same. Maybe you make a lot of money. Maybe you don't make a cent.

"When I was a boy, there were 25 big two-masted fishing schooners that belonged in this harbor. They went mostly to Canada and fished off the Grand Banks of Newfoundland. A *bank* is a place in the ocean where the water is not very deep and where fish can find the food they need.

"In the early days, the crew stood along both sides of the boat. Each man had two fishlines. If luck was good, a man could haul in one line, take off a 50-pound cod, put on new bait, and throw his line back. By that time he would find a fish on his other line.

The boxes were then carried to the cold rooms, where the fish was frozen hard. As the boys left the wharf, they saw a big truck being loaded with frozen mackerel for city markets.

At Brown's Lobster Pound Chris and Dave watched hundreds of lobsters moving about in the water. The pound was a deep pen on the edge of the harbor. There was an iron fence around it, so that the sea water could come in but the lobsters could not get out. Men were using nets with long handles to pick up the lobsters from the pound. They put them in wooden barrels, packed ice around them, and covered the top with cloth. One barrel was marked BY AIR TO ST. LOUIS.

### Fishing in the Old Days

"Let's go up to my grandfather's," said Chris. "Grandma will give us something to eat, and Grandpa will tell us a story."



“When I was a young man, we fished mostly with *trawls*. A trawl was a very long, strong line, with short lines tied to it every six feet. There was a hook at the end of each short line. The trawl was kept in a tub, so that it would not get snarled up. Each fishing schooner carried eight or ten small, flat-bottomed boats, called dories, and two men for each dory.

“As we came to the fishing banks, we baited our tubs of trawl. The captain dropped the anchor, we put our trawls in the dories, and set the boats in the water. We rowed away, half a mile or more.

“A small anchor was put over, to hold one end of the trawl; and a floating barrel was tied to it, to mark the spot. While one man rowed slowly, the other tossed the trawl into the water, a little at a time. It sank to the bottom of the sea. When the trawl was all out, we anchored the end and marked it with another floating barrel.

“Then we rowed back to the schooner and baited a trawl for the next day. After we had eaten, it was time to go back and pull up our trawl. Sometimes there was a fish on every hook. Sometimes there were few fish. On the schooner we had another big job to clean the fish. Then we put them down in the ship’s hold, with the ice.

1) These are the tubs of trawl that Grandpa used to fish with. A trawl is a long fishing line, with many short lines attached. The hooks on each short line are hung around the rim of the tub so that they will not snarl up the line. 2) The fisherman in the dory is pulling in his trawl. 3) On the way home, the crew clean the fish that they have caught.





"There are many foggy days on the banks. I've known the fog to be so thick that dories could not find their way back to the schooner. Sometimes the fog lasted for days, and the men died because they had no food and water. I've known fishing schooners in a fog to be hit by a big steamship and cut in two. I've known weather so cold that the man on lookout at the top of the mast was frozen to death."

"I'm glad those days are over," said Grandma Pruitt.

### DO YOU KNOW?

1. How can sailors recognize the foghorn at Courage Cove? At other places?
2. What kinds of work did the boys see being done in the boat shop and the repair shop?
3. What were some of the things for sale in Blake's general store?
4. What goes on in a place where fish are frozen and prepared to be sent to cities all over our country?
5. What is a lobster pound? How are lobsters packed to be sent to other places?
6. In what ways is fishing for a living easier now than it used to be?
7. What is a bank in the ocean?
8. What is meant by trawl fishing?
9. Why don't fishermen like fog?

### LEARNING BY DOING

1. Find pictures of fish that are used for food. Try to learn something about each kind.
2. You might like to make a fish booklet. You can draw or paste a picture of some kind of fish on each page; then you can write a story about it.
3. Pretend that you were in Courage Cove during the storm, and write a letter about it.

### BEING A GOOD CITIZEN

Fishermen risk their lives to catch fish for us to eat and to earn a living for their families. How can we show that we appreciate their hard and dangerous work? How can we show that we appreciate other workers?

## The Artist

One afternoon Chris and Dave had been picking blueberries in a field a mile away from the Cove. When their pails were full, they walked home along the shore.

Dave saw an artist on a nearby hill. She was sitting on a stool, with an easel before her.

"Let's go over and see what she is painting," Dave said. "Some of the artists make very pretty pictures."

The lady looked up when the boys came near. "Good afternoon," she said.

"Good afternoon," replied Dave. "May we look at your picture?"

"Yes. I've just finished it. How do you like it?"

The boys looked at the picture, and then at the ocean. At the left, big waves were pounding away at the rocky shore. This was the scene that the artist had painted—the blue of the sea, with great waves breaking against the brown rocks, and white spray flying high in the air.

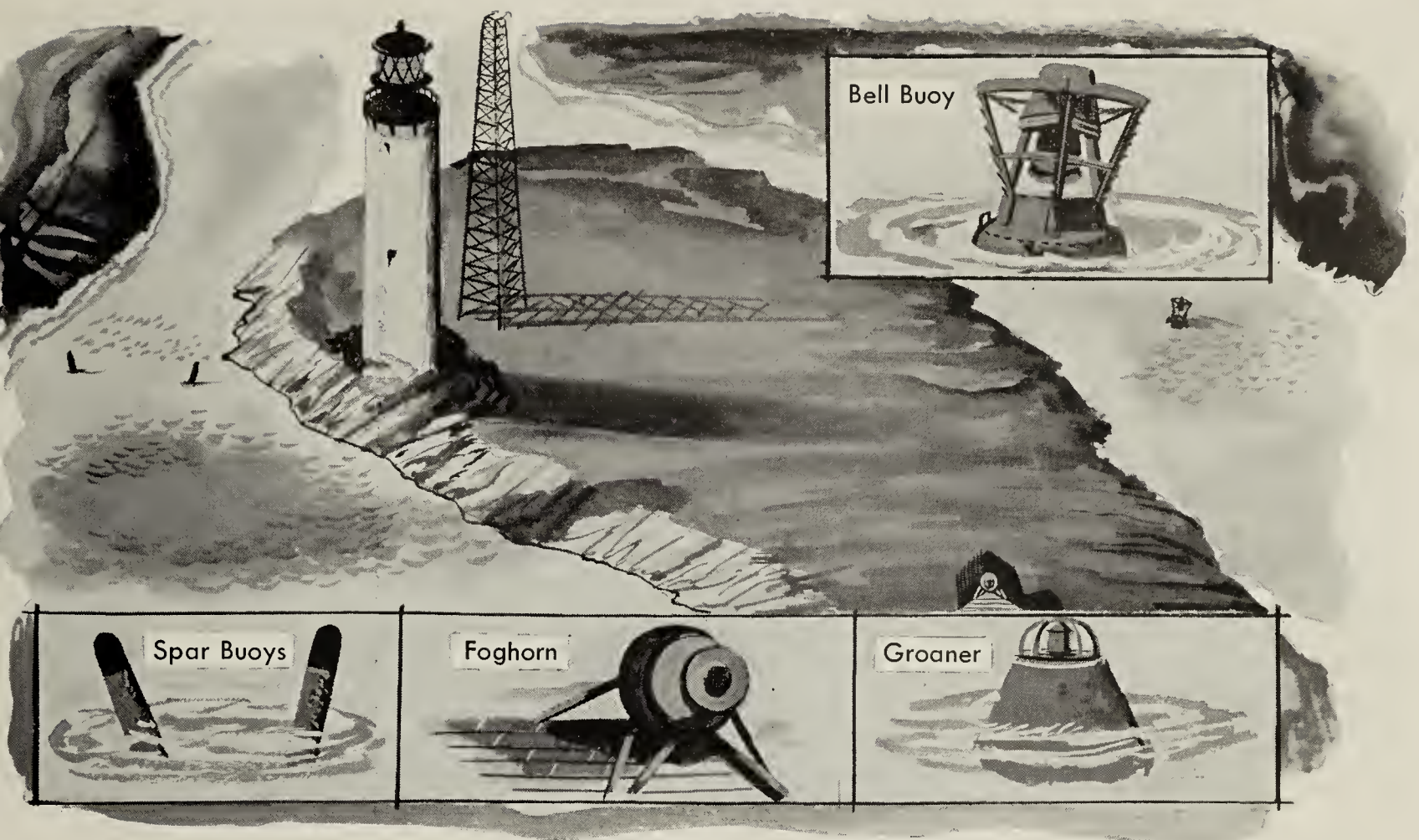
"I like it very much," said David, and Chris nodded.

"Are you boys in a hurry?" asked the artist. She took the painting from her easel and fastened a piece of paper there. "Could you tell me some things I want to know?"

"We can stay awhile," David answered. "What do you want to know?"

"Sit on that rock over there." The artist began to sketch as she talked to them. "In the wide harbor mouth I see two logs sticking up out of the water. One is red and one is black. What are they for?"





These are some of the forms of communication that help ships travel safely. The spar buoys at the left mark one entrance to the harbor. The bell buoy at the right marks the other entrance. What other forms of communication does the picture show? The story will explain more about them.

"They are called spar buoys. They are anchored there to mark the channel into the harbor," David replied. "Ships must keep between them. When they come into a harbor, they keep the red buoy on their right and the black buoy on their left."

"About a mile out to sea there is another kind of buoy," said the artist. "Sometimes I hear a noise like a groan, which seems to come from that buoy."

"We call it the groaner," Chris explained. "When the waves tip it to one side, it pulls air in. When it tips the other way, it blows the air out and makes that noise you hear. If it is snowing, or if the fog is thick, the fishermen can hear it. It tells them that they are near the mouth of the harbor."

"In the top of the groaner there is a small gas light. When the sun is shining,

you can hardly see it. But at night it is very clear."

The artist kept on with her drawing. "Is that a bell buoy in the small mouth of the harbor?" she asked.

"Yes," answered Dave. "The waves move it and make the bell ring. Boats are safe if they keep close to this buoy when they come into the harbor."

"Sometimes there are bell buoys far from land," Chris added. "If there is a rocky ledge almost up to the top of the water, a bell buoy may be anchored there, to tell ships to keep away."

"I know a lighthouse when I see one," said the artist, "but what is that tall iron mast on Seal Island?"

"That is a radio mast," Chris replied. "It sends out the same signal all the time. Ships can pick the signal up on their radio when they are too far away to see the





This is the scene the artist painted—the blue of the sea, with great waves breaking against the brown rocks, and white spray flying. A sea gull perched on a piece of driftwood, while other gulls swooped overhead. It was a scene that Chris knew well, but the painting made him see it with new eyes.

lighthouse. When fog or snow is thick, the signal can guide them. Then they know which way to steer to find Courage Cove.”

“Why do you paint pictures?” Dave asked suddenly.

“Because I like beautiful things,” replied the artist, with a smile.

“Do you sell many pictures?” Chris asked.

“Sometimes I sell one. And I give some to my friends at Christmas.”

“Lots of artists come to Courage Cove,” said Chris.

“Yes,” she replied. “I have met one famous artist here. His pictures are wonderful, and he sells them for a high price. But many of the artists here are young people, just learning to paint. Most of us paint because it makes us happy to paint the beauty we see around us.”

“May we see what you have been drawing?” Dave asked.

The artist smiled. “Of course.”

The boys stepped up to the easel. Much to their surprise they found a sketch of themselves. The drawing showed the two boys sitting on a rock, with full blueberry pails beside them, and looking out at the wide ocean.

“Do you like it?” she asked. Both boys nodded.

“Would you like to have it?” she continued. Chris and Dave looked at each other. “Yes,” Dave said.

“This is just a rough sketch,” said the artist. “I’ll finish it and take it back to Chicago to show to my friends. Then I’ll make another like it, and send each of you a picture for Christmas. I’ll need your names and addresses.”

“Thank you,” said the boys together.



## Fishing from a Dragger

The end of August drew near. Chris and Dave could look back on many happy days. They had pulled lobster traps. They had dug clams. They had picked blueberries. They had mowed the grass and run errands for summer people. They had gone swimming and had played ball with other boys. Chris had already given his father \$25 as his share for the television set.

One morning Mr. Mitchell said to the boys, "Captain Race is going to take me out in his *dragger* tomorrow, if the weather is good. Do you want to go?"

"Sure!" exclaimed the boys.

Soon after daylight the next morning, the boys and Dave's father were at Captain Race's wharf. Each one had his lunch in a paper bag. They found the captain and a crew of four men on board

the 45-foot dragger. The diesel engine was already being warmed up. Soon the ropes were let go and the boat backed away from the wharf. Then Captain Race turned it and steered for the open sea.

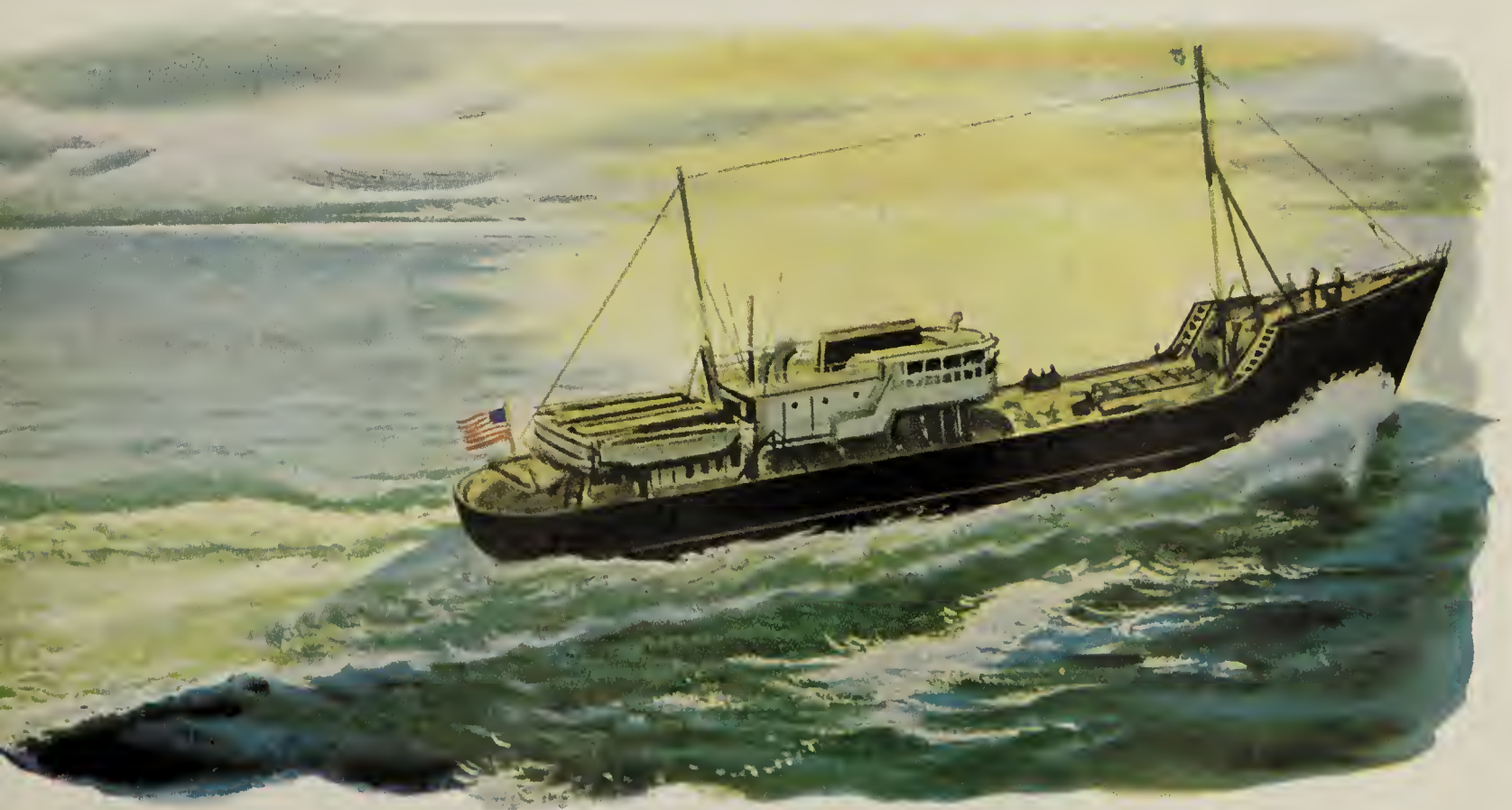
The waters of the harbor were smooth and quiet. The tide was going out.

Outside Seal Island, Captain Race looked at the ship's compass and turned the boat to south-southeast. An hour passed. Far behind, the land faded away in the distance. Only a few fishing boats could be seen.

Another hour went by. Land could no longer be seen. There was only the wide blue ocean all around, with blue sky and white clouds above. It gave Chris and Dave a queer lonely feeling.

Another hour passed. The south wind began to blow. Now the water was not smooth. Bigger and bigger waves rolled

Can you understand why Chris and Dave had a queer lonely feeling when the dragger was out of sight of land? All they could see was the wide blue ocean, stretching for miles and miles in every direction.







When the dragger's net is pulled in, it is full of many kinds of fish. The picture on page 171 shows how a dragger has its deck close to the water, to make it easier for the men to haul the net over the side of the boat.

the net, the doors are pulled wide apart to let the fish in.

Captain Race and his crew dropped the net into the water, and it went down and down. At last it stopped. Then the boat slowly pulled the net along the bottom of the sea where the fish were feeding.

The boat dragged the net for twenty minutes. Then it stopped again, and the engine began to pull the net in. At last it could be seen, nearly full of fish. It was lifted over the opening into the hold of the boat. One of the crew pulled a rope that opened the bottom of the net, and the fish dropped into the hold. There were cod, haddock, sea perch, and others, both large and small.

Then the net was dropped to the ocean floor again, and the boat moved on.

"Some of those fish don't look big enough to sell," Mr. Mitchell said.

"Yes, that's the bad part of it," agreed Captain Race. "A dragger takes everything, baby fish as well as big ones. But this is the best way a fisherman has to catch a lot of fish. Draggers are used everywhere. We hope that there will always be enough fish, even though we do catch many of the small ones."

The dragger stayed on the bank until two o'clock. By that time the net had brought in thousands of fish.

"Do you know how to get home from here?" asked Captain Race, smiling at the boys.

along. The dragger lifted her bow to meet each one. She rode up and over, and then dropped her bow down while her stern rose up. When the biggest waves came, spray flew into the boat.

Captain Race took out his watch. "This is the place," he said. "Stop the motor, Frank. Let's get the drag over the side, men."

"How do you know where to stop, out here in the ocean?" asked Mr. Mitchell. "I can't see any signs."

"Two things tell me," the captain answered. "My compass tells me which way to steer, and my watch tells me how long to go. If I don't hit the bank the first try, I know that the wind or the tide has driven me off my course. I always hit the bank the second time."

The trawl used by a dragger is a great bag of net. Its mouth is held open by two wooden doors. When the boat drags



Chris looked around. "If the wind is southwest, home must be over there," he replied, pointing to the northwest.

"Pretty close," said Captain Race, "but that way would land you in Portland." He took the boys to the compass and showed them how to steer the boat north-northwest.

An hour later the top of the highest hill near Courage Cove could be seen, far, far away. Still later they could see the land spreading out, low beneath the sky. When they got back to Courage Cove, Captain Race took the boat to the Freezer, where he sold his fish.

#### DO YOU KNOW?

1. What kinds of communication help ships?
2. What do you think of the way Chris and Dave spent their vacation? Do you think they would have enjoyed playing more?

3. What can you tell about the trip the boys took in Captain Race's dragger?

4. How does the trawl used by the dragger work? In what ways is it better than the kind Grandfather Pruitt told the boys about? How is it not so good?

5. Do you know how a compass is used to tell directions? Do you know of any other ways of telling directions?

#### LEARNING BY DOING

Ask your mother for her favorite recipe for cooking fish or other sea foods. Make a book of the best recipes your classmates bring in. This recipe book would make a nice Christmas present for your mother. You should do your best writing, and you can draw some pictures in it.

#### BEING A GOOD CITIZEN

The artist in Courage Cove asked the boys to tell her the things she wished to know. We can all learn from people we meet. How can you learn even if you do not ask questions? How can you help other children learn?

The coast of Maine is rough and rocky. To warn sailors when they are close to dangerous rocks, light-houses have been built at many places along the coast. This one is at Portland, Maine.

*Ewing Gallowsay*







## The Months of Autumn

By the end of August, the Pruitts had saved enough money to buy a television set. Chris was proud to think that he had helped pay for it.

"I'm glad we could get it now," he said to his mother. "Then I won't miss Dave so much when he goes home next week."

When September came, the Mitchells went back to Philadelphia. All the other summer visitors went home, too. In a week the village of Courage Cove seemed like a different place.

The stores and gift shops were no longer full of people. There were few cars in the streets. Repair shops were filled with boats belonging to summer people. Other boats were pulled up on the shore and covered with boards, to keep out the rain and snow.

When cold weather comes, the *schools* of herring and mackerel swim south to warmer waters. Not much fishing is done during the months of autumn. The fishermen keep busy with other jobs.

Fishermen who use seines take their big nets on shore. They lay them out flat to dry them and to mend torn places.

Many lobster fishermen take in their traps and pile them on shore. They fix the broken places and they build new traps to use when spring comes again.

Some fishermen are good boat builders. They may make a new boat for themselves or for other fishermen. Some work as carpenters and repair the summer cottages.

A few men take a motor saw and axes into the nearby forest, to cut trees for pulpwood. In the spring a truck will take the pulpwood to a paper mill.

Older men who have done well with their fishing may take their wives to Florida for the winter.

But some men fish all winter long. They are the ones who like the sea very much, who have big, strong boats and do not mind cold and storm. Even they must stay in the safe harbor many days, when the winds and the waves are too high.

### DO YOU KNOW?

1. What changes happened in the fall?
2. How did the fishermen spend their time?
3. Why isn't much fishing done in the fall?

### LEARNING BY DOING

Prepare an exhibit that shows ways of fishing. Draw pictures and make such things as little boats, lobster traps, and nets.

### BEING A GOOD CITIZEN

How have you and your family worked together for something you wanted? Why do you like to help your family?





1) The old lobster fisherman is sitting on a lobster trap as he repairs the net to fasten over the end of the trap. A lobster can easily get into the trap through the big round opening; but when he tries to find his way out, his claws get tangled in the net. 2) Fishing nets are expensive and must be carefully dried and mended after each fishing trip. The nets are wound on big wooden racks to dry. 3) The crew of a dragger are mending holes in the net.







In the coldest weather, even the salt water of the ocean freezes along the shore. Then a Coast Guard icebreaker plows its way through the solid ice, to keep channels and harbors open. The *Sunbeam*, mentioned in the story, can also break its way through ice.

## Winter at Courage Cove

With Thanksgiving and Christmas, snow and ice and cold weather come to the Maine towns and cities, fields and forests, that are far from the sea. The land cools quickly when the north winds blow down from Canada.

But winter comes late to the coast of Maine. The temperature of the ocean changes slowly. When the land is very cold, the winds from the ocean are still warm. If it snows in northern Maine, the snow often turns to rain along the coast.

As the days go by, the weather along the coast becomes cold and stormy. Winter storms are sometimes very bad. The winds are strong, the waves are big, the air is bitter cold.

In winter, few boats are out on the ocean. Then the families of fishermen

who live on islands are glad to see the *Sunbeam*. That is the boat of the Maine Seacoast Mission. Her captain brings Christmas presents to the children, he carries medicine, he talks with sick people, and he preaches in the island church or in a home. He is always ready to help.

### A Storm at Sea

One Sunday night at Courage Cove the weather was very rough. It was snowing hard. The roar of the waves was loud as they pounded against Seal Island. The Pruitts were safe and warm at home, watching television.

Suddenly the phone rang. Seth Pruitt answered it. "Yes," he said, and then a minute later, "I'll be right there!"

"Where are you going?" cried Chris. "May I go, too?"



Fishing boats that go out into the North Atlantic Ocean in the winter are often coated with ice.

"To the Freezer. The *Sunbeam* is coming in from Green Island. She's bringing a man with a broken leg. They'll land at the big wharf. They need help to get him into a car, to take him to the hospital. Yes, you may come, Chris."

Chris and his father put on their heavy coats and hurried to the garage. A few minutes later, they were on their way to the Freezer.

"How did they get the news?" asked Chris. "There are no phones or radio sending station on Green Island."

"The *Sunbeam* was there. The captain must have used his ship-to-shore telephone to call the *Coast Guard* Station at Burnt Island. Then the *Coast Guard* phoned the Freezer."

Out at sea, pounded by wind and wave, the *Sunbeam* was steering for Seal Island Lighthouse. The snow was so thick that the captain could see nothing, even with a strong headlight. He steered by his compass and by the radio signal from the lighthouse.

When the biggest waves hit the boat, she trembled but kept on. The spray flew on board and froze upon her deck, her ropes, her mast. But slowly she came closer and closer to shore.

"There she is!" cried Chris suddenly. "I can see her headlight."

Minutes dragged by before the *Sunbeam* entered the quiet waters of the



harbor. Then she moved slowly up to the wharf. Eager hands reached out to lift the injured man from the boat. Then he was carried to a car, which drove away to the hospital.

"The ship-to-shore telephone is a great thing," said Mr. Pruitt, as he and Chris drove home. "Without it, it might have been days before that man on the island could have got a doctor to take care of his broken leg."

"Why don't you get a ship-to-shore telephone for our lobster boat?" Chris asked.

"It costs too much," his father replied. "But it would be a handy thing to have. It's like a tiny broadcasting station."

"With a ship-to-shore telephone, the captain can call other boats or *Coast Guard* stations or *Radio Central* in Boston. He can send word to friends that he has found good fishing, so that they



Sometimes the towns along the Maine coast suffer from heavy snowstorms. It will take a lot of digging to clear the streets and sidewalks after this storm. The parked car is almost buried by the snow.



can come. He can find where the best price is being paid for fish.

"If his boat is having trouble, he can call the Coast Guard, and they will send a boat or a seaplane to help him. If his wife needs to send him a message, she telephones Radio Central in Boston. The captain turns on his radio at noon and at six o'clock. Boston calls him then, he answers, and they give him his wife's message."

### Movies to Help Fishermen

Winter was passing quickly at Courage Cove. Chris had a good schoolhouse, a good teacher, good books, and good friends. When there was snow on the ground, he used his sled and skis. When a rainstorm took away the snow, and the weather became cold again, he went skating.

One afternoon when Chris came home

from school, he said to his father, "There's a poster at the store. It says there will be a meeting at the schoolhouse Friday night. Don Chase, from the Sea and Shore Fish Department, is going to show some pictures about fishing. May I go?"

"We'll both go," said his father.

Friday night at the schoolhouse, there was a crowd of fishermen and their sons, and a few women and girls. Most of them knew Don Chase. He was the son of a fisherman, who had gone to college to learn about fish and fishing. Now he worked for the government. He studied ways to help fishermen catch more fish, to have more fish for them to catch, and to get them to market in the best way.

First he showed a movie about herring. It showed fishermen using their seine to catch these little fish. The men began putting the net over the side while the boat slowly made a circle around the

Chris and his friends have fun in the winter, sliding downhill on skis and sleds. How do you have fun in the winter?







An old method of handling herring was to hoist them up in buckets. A newer method pumps them through a big hose. During this process the small shiny fish scales may be removed, for use in making jewelry.

school of herring. The net hung straight up and down in the water. When the boat had finished the circle, a wall of net had been placed around the fish.

Next the fishermen pulled a rope and closed the bottom of the net, so that the herring could not get out. Then they pulled the net into the boat, little by little. The fish were crowded together in a smaller and smaller space.

Finally the last part of the net, with all the herring inside, was drawn close to the boat. A big hose was dropped down among the herring, and a pump was started. Herring and water were pumped into the seineboat. The water ran back into the sea, while the herring were dropped into the hold of the ship. One of the crew threw small pieces of ice over them.

Then a larger boat came along and bought the fish from the captain of the seineboat. The big boat took the herring to a factory where they were cleaned, placed in small flat cans, and cooked. They would be sold as sardines.

After another movie about lobster fishermen, Don Chase asked for questions.



"It's getting harder and harder to find clams," a fisherman said. "Why is that?"

"The men in our department believe that we have found the answer," Don replied. "A small green crab causes the trouble. He used to live farther south. Now the winters have become warmer, and this crab has moved north to the coast of Maine. His favorite food is tiny clams. There are millions of these crabs and we cannot find a way to get rid of them. It will take a very cold winter to kill them off."

"What kinds of fish bring us the most money?" asked one man.

"About half of all the money paid to Maine fishermen is for lobsters," answered Don. "Next come sea perch, then herring, then clams."

This is the little green crab that is killing the clams along the Maine coast. Doesn't he look mean?







Fish may be prepared for market by canning or by freezing. The picture at the left shows many small cans of sardines, made from herring caught on the Maine coast. The other picture shows workers packing the white meat of sea perch in boxes. This fish will be frozen before it is sent to stores to be sold.

“Why are sea perch so important now?” asked the owner of a dragger. “A few years ago we used to throw them away whenever we caught them in our nets.”

“A big packing company tried cutting off the white meat, putting it in boxes, freezing it, and sending it to city markets. People like it, and now it’s big business. The rest of the sea perch is sold for lobster bait.”

“What new information do you have to tell us lobster men?” Seth Pruitt asked.

“Many things. Why do some lobsters die when they are put in a pound? We have found some of the answers. Lobsters get sick, just as people do. We are learning what causes this and how to keep lobsters well. We are finding ways to keep them alive at city markets until people buy them.”

### DO YOU KNOW?

1. Why does winter come late to the coast of Maine? How is the weather different in other parts of the state? What is winter like in the region where you live?

2. What is the *Sunbeam*? Do you think this ship is well named? Why? What kind of man does the captain have to be?

3. How does a ship-to-shore telephone help fishermen and other people?

4. What kind of pupil do you think Chris was? Do you think he liked school? Why?

5. How are herring caught and canned?

6. What kinds of fish bring the most money to Maine fishermen?

7. How are sea perch used?

8. How is the Sea and Shore Fish Department helping lobster fishermen?

### LEARNING BY DOING

1. Would you and your classmates like to make a motion picture about fishing? Use a long strip of paper. You can draw your pictures on the paper or paste them on. Think of interesting things to tell about each one.

2. You and your classmates might like to write riddles for one another to guess. You can write them about people, ships, fish, or anything else in the story. Make them as interesting as you can without giving the answer away too easily.

### BEING A GOOD CITIZEN

Why do you suppose the captain of the *Sunbeam* is willing to risk his life to help others? Can you think of other workers who also risk their lives for others? How can we help them?



## Lobster Fishing in Winter

In winter, lobsters find the water too cold near shore. They swim out to deep water, far from land. The fisherman must go a long way to set his traps. Sometimes many bad days go by before he can go out in his boat. And after a big storm he may find his traps broken because giant waves have smashed them against rocks.

Northeast storm winds blew for a week in February. Seth Pruitt had not been out to his traps for days. Then the sky became blue again, and a cold north wind came down across the land from Canada.

This morning Mr. Pruitt got up before sunrise, ate a hot breakfast, and put on his warmest clothes and rubber boots. He picked up the lunch his wife had made ready and kissed her good-bye.

"Be careful out on the ocean today," she said, and he promised.

In the coldest weather, even the salt water of the ocean freezes along the shore. Mr. Pruitt had to break an inch of ice before he could row his skiff out to the mooring. The motor of his lobster boat was cold, and hard to start. When he got it going, he steered for the lighthouse and passed out of the harbor mouth. Overhead the stars were growing pale as daylight came.

He turned the boat southeast and kept on for nearly an hour. The little stove in the tiny cabin did not give much heat. He stamped his feet and pounded his hands together to keep them warm.

Seth Pruitt was far from land when he reached his first buoy. He picked up

his stick with a hook on the end, caught the rope, and pulled in the trap. He found five good lobsters in it. He put new bait in the trap and pushed it back into the water.

Then he looked around. The sun was just rising from the cold ocean. Far away to the north the shore was like a light blue cloud. The north wind was coming strong, and the waves were putting on little white caps. It was a beautiful morning.

Mr. Pruitt started his propeller and steered for his next buoy. Suddenly there was a grinding noise, and the motor stopped. He took his stick and hurried to the back of the boat. He reached down over the stern and found that the trap rope was wrapped around the propeller.

It was wrapped so tightly that the propeller could not turn. He pulled and pulled on the rope but he could not get it loose. A big wave threw spray on him, which quickly froze upon his coat.

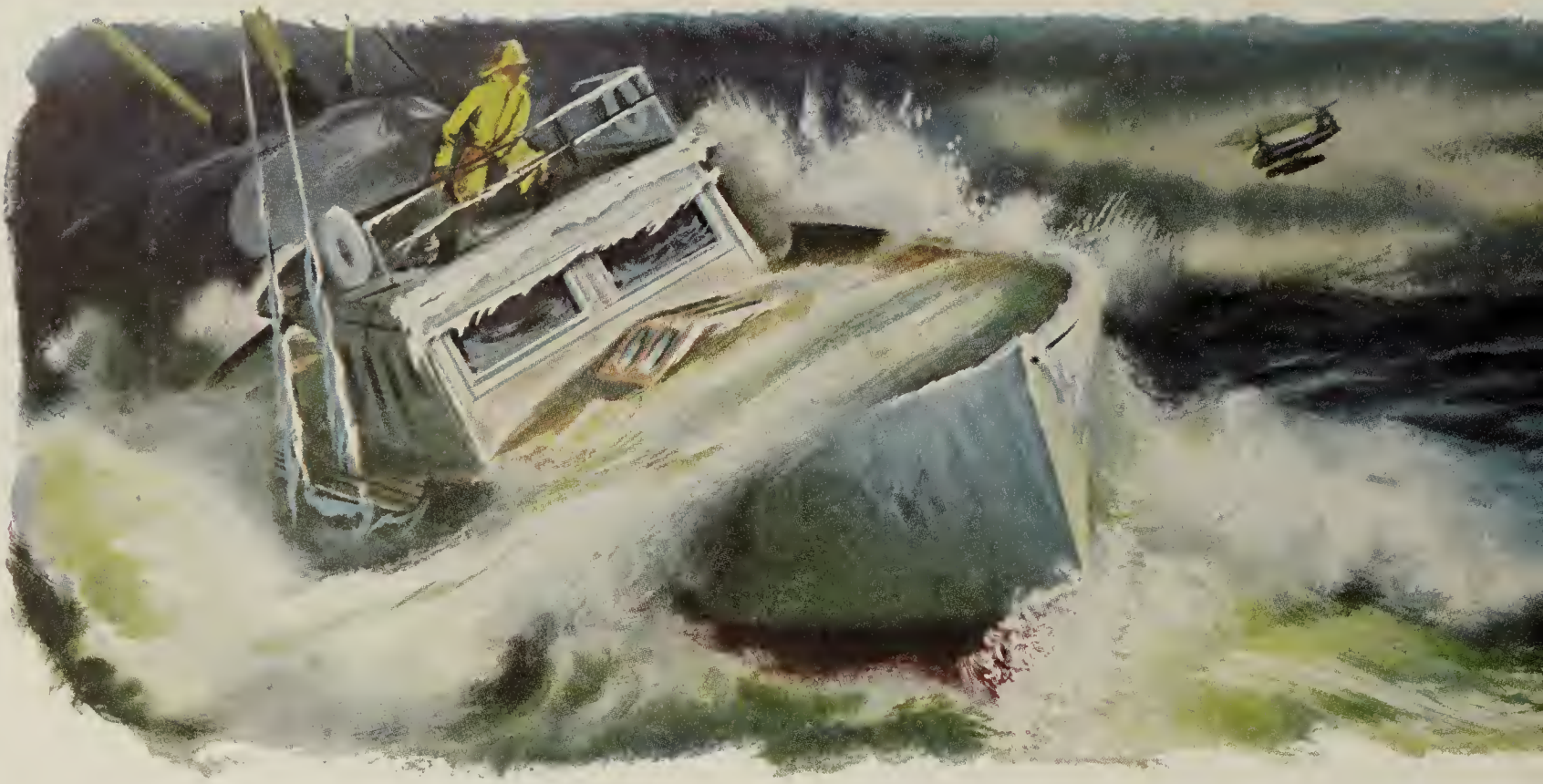
He kept trying to get the rope away from the propeller. The wind grew stronger. The waves grew larger. The air grew colder. Soon the boat was covered with ice. But Mr. Pruitt could not get the rope loose.

## The Coast Guard to the Rescue

At home Mrs. Pruitt went often to the window, to look out across the harbor. Her husband should have been home before noon, but still he did not come.

At two o'clock she telephoned the Coast Guard at Burnt Island. "My husband is late," she said. "I am afraid that something has happened to him. He





The Coast Guard helicopter has spotted Mr. Pruitt's boat. Just in time, too, for the wind and waves are freezing cold, and he has been stalled out in the ocean for hours. No wonder he is glad to see them.

should have come back two hours ago. He is pulling lobster traps a few miles east of Burnt Island. Will you try to find him?"

The captain of the Coast Guard promised that he would start searching immediately.

Mrs. Pruitt went back to the window, to watch and wait. Aunt Emmie came in to wait with her, but the two women did not talk much. Mrs. Pruitt kept looking at the clock, to see how much time had passed since she called the Coast Guard.

About an hour later the phone rang. Mrs. Pruitt hurried to answer it. It was the man at the Freezer.

"The Coast Guard just called in by ship-to-shore telephone," he said. "They have found your husband, and he is now safe and warm. They are bringing his boat in. You should see them about dark."

Now the time of waiting did not seem so long. Mrs. Pruitt went out to the kitchen and began to prepare a good hot supper. When Chris came home from school, she told him what had happened. Chris went to the front window to watch for the Coast Guard boat.

At last he saw it coming. It was pulling his father's boat. "They're heading for Gray's wharf," Chris called to his mother. "I'm going down there." He snatched up his hat and coat and raced away.

Before long, a friend brought Chris and Mr. Pruitt home. Mrs. Pruitt put her arms around her husband's neck and cried a little.

"Never mind," he said. "It's fisherman's luck. I'm all right now. But it would have been bad if the Coast Guard helicopter hadn't spotted me. It was bitter cold out there."





The Coast Guard boat comes dashing to the rescue. They know where to find Mr. Pruitt, because the men in the helicopter have sent them a radio message. Soon Mr. Pruitt will be safe at home again.

“But I didn’t dare cut the rope. If I did, the wind would have blown me out to sea. So I let the lobster trap act as an anchor while I hoped for the best.”

“Thank God for the Coast Guard,” said his wife. “Wash your hands. I have supper all ready for you.”

“I’m going to join the Coast Guard when I finish high school,” Chris said. “That would be exciting. One of the men on the boat told me their motto is ‘Always Ready.’ Ready for anything.”

“It’s a good life for a young man,” agreed Seth Pruitt, as he sat down at the table with his family. “In wartime they guard our coast by watching for enemy submarines and any spies who might land. And always they are ready, with boat and with plane, to help anyone who is in trouble at sea.”

“They brought you home to us,” said Mrs. Pruitt. “That’s the best thing.”

### DO YOU KNOW?

1. In what ways is lobster fishing harder in winter than in summer? Why do lobsters leave the shore in winter?
2. Why must fishermen be brave men? Do you think you would like to be a fisherman?
3. What was the day like when Mr. Pruitt started out? How did it change?
4. Why didn’t Mr. Pruitt cut the rope that held the propeller of his boat?
5. What do you know about the work of the Coast Guard? What kinds of men are needed for this work?
6. Do you think Chris would be a good Coast Guard? Why or why not?
7. What things do you like best about the Pruitt family?

### LEARNING BY DOING

Look at the pictures of ships in your book. See how many of them you can name without looking at the captions.

### BEING A GOOD CITIZEN

How do you like the motto of the Coast Guard? How can you use this motto at school? At home?





Along the coast of Norway, fiords thrust inland between high mountains. The people who live in the village by this fiord are both farmers and fishermen.

## Living in a Norwegian Fishing Village

When we think of the most important fishing countries in the world, we always include Norway. For hundreds of years this country has been famous for its fishing industry. Find Norway on the map in your Atlas. What ocean does it face?

### Norway Looks to the Sea

Not very much of Norway is good for farming. Most of the land is mountainous. So many of the people look to the sea for part of their living.

The waters around Norway are full of valuable fish. The Norwegian people eat many of the fish they catch. They sell some fish to people of other lands.

### The Climate Helps the Fishermen

Did you notice that Norway is far north of Maine? You would expect it to have very cold winters with too much ice for the fishing boats to go out.

But it isn't that way at all. This is because a warm current of water moves along the coast of Norway. It keeps the climate warmer than that along the coast of Maine where Chris lives.

So Norwegian fishermen are busy all winter long. In the summertime most of the fishermen are farmers. They raise potatoes, turnips, grain, and hay, and keep cattle, sheep, and goats.

Because their fields are so small, everyone in the family must work hard to make the land produce as much as possible. Here is a story that tells how the Haugen family who live in Norway all worked together to bring in the hay.

### Working Together on the Farm

"Torger, I want to drive today! Let me drive!" cried Nels.

Torger Haugen turned to see his small brother running in at the open door of



the old log barn. Torger was busy harnessing the fat pony to the hay cart. "You aren't big enough to drive, Nels," said Torger. He was almost twelve, tall for his age, and used to hard work.

"Yes, I am! I'm five," said Nels, standing as tall as he could. "And Father said he needed all hands today to get the hay under cover before it rains."

That was true, Torger knew. He looked from his little brother's eager face to the quiet, gentle pony. Perhaps Nels could drive him.

"Up you go, then," Torger said.

Nels quickly scrambled into the low cart, and Torger jumped up beside him. "I'll back out of the barn," he said. "Then you can drive over to where Father is getting ready to load the hay." Nels nodded his head with delight.

When Father saw who was driving, he winked at Torger. "We have a new hand today, I see," he said. "A good thing, too. We must get all the hay in before it rains."

The hay had been cut a few days before and hung over fences to dry. Now Father began swiftly pitching the hay into the cart. Torger stood in the cart and used his pitchfork to spread the hay. When the cart was full, Nels drove it to the barn. Mother and Sister Inga were there to unload the hay.

Torger and his father were working on level land. The next field sloped steeply up toward the mountain. There Grandfather was working with a scythe. He carefully cut around rocks and bushes, to get every blade of the precious grass. Grandmother raked the grass and spread it over the fences to dry.



This map provides a look at Europe. Is it a large continent? In which direction is the Atlantic Ocean from Europe? Which continent is east of Europe? South of Europe?

About 10 o'clock Mother and Inga came out to the field with a basket of food. They brought coffee and milk, rolls, dark rye bread, and cheese. The family all stopped work to eat lunch in the field.

Haying was hard work. But they had discovered long ago that if they all worked together it went quickly and was fun.

After lunch, many more loads of sweet-smelling hay went to the barn, with Nels driving the pony proudly.

Late in the afternoon, dark clouds rolled in. Big drops of rain began to spatter. Torger and Father loaded the hay faster and faster. As the last forkful went on the cart, Torger jumped up beside Nels. He took the reins and shook them over the pony's back with a shout. Away they went at a gallop! They clattered into the barn just before the heavy rain started.





This is a map of the fiord next to which Torger lives. Does Torger live in the town? Can much of the land here be used for farming? How do you suppose the people in this community make a living? Would you like to live here? Why or why not?

"I helped!" Nels cried joyfully. "I helped bring in the hay!"

"That's how we got it done in time," said Torger, grinning at his blue-eyed brother.

### Up in the Mountains

The day after the hay was brought in, Torger went up to the summer pasture in the mountains. His sisters Gudrun and Stina were there with the cows and sheep and goats. While the weather was warm, the animals could graze in the high mountain pastures. The hay from the fields close to home had to be saved to feed the animals during the winter.

Gudrun and Stina did not mind living in a little hut on the mountainside during the summer. They were busy taking care of the animals and making butter and cheese. They had no time to be

lonely. But they were always glad to see Torger when he came up to bring them food and to carry back butter and cheese.

Torger was glad that he was not a girl. He would not have wanted to take care of cows and goats and sheep. He liked helping his father with the farming and the fishing.

### Millions of Fish

Torger's family lived on the edge of a *fiord*. A fiord is a long arm of the sea that thrusts into the rocky coast. There are high mountains on both sides of the fiord. The level land between the fiord and the mountains is good for farming.

In the summer Torger and his father often went fishing in the fiord. But the big fishing expeditions came late in the winter and in the spring, when Torger was in school. He could not go on these



trips out on the ocean. But Father often told about them.

From January to March the fishermen went after codfish. Millions of codfish swim in the waters along the upper coast of Norway. They may be caught easily with nets and with fishlines. Norwegian fishermen catch enough codfish to feed hungry people in many countries. Some of the codfish is salted, some is dried, and some is frozen. Cod-liver oil is also made from the livers of the codfish.

In spring and early summer, the Norwegian fishing boats go farther north to catch herring. These little fish swim in huge schools. Some schools are several miles across. The fishermen can tell where they are. They watch the sea birds that gather over the school of herring, darting down to catch some fish.

Some of the herring caught by Norwegian fishermen is taken to big modern factories. Oil is pressed out and made into margarine. The rest of the catch goes to packing plants where the herring are pickled or smoked or canned.

Torger would be glad when he was old enough to go after cod and herring with his father. But most of all he hoped that sometime he could join a whaling expedition, like his brother Oscar.

### Whaling in the Antarctic

Torger could hardly wait for Oscar to come home from the Antarctic, 8,000 miles to the south. He wanted to hear all about chasing whales through seas covered with icebergs.

At last, after eight months, Oscar came home. His face was very brown on the forehead and upper cheeks, but his chin



What does this map tell you about Norway? Does Norway have many mountains? Does it have a long seacoast? Is the seacoast even or uneven? Do you think that Norway has many good harbors?

was rosy pink. "We all grew beards in the Antarctic, to keep our faces warm," he explained. "I didn't have mine shaved off until we landed at Oslo."

"What was your ship like?" asked Torger. "Was it a big one?"

"Bigger than any you've ever seen," Oscar replied. "It was like a floating factory. It had a crew of 700 men, almost all Norwegians. Men from Norway have always been daring seamen, and they still like to sail to faraway places."

"How can your big factory ship get close enough to a whale to catch it?" Torger wanted to know.

"We went after the whales in fast motorboats," answered Oscar. "They



carry the gunners and do the real hunting. Cousin Ole was the gunner on the whale catcher that I went with. He's one of the best, and he's teaching me."

"You didn't do any harpooning?" Grandfather asked.

"Not yet. That takes a real expert," replied Oscar. "I was the youngest one on our catcher, so I had the worst job. I was up in the lookout tower on the mast, watching for whales. They have to rise to the surface to breathe, you know. When I saw a spray of water rising from the sea, I would shout to the men on deck. Away we'd go, as fast as we could, with the steersman dodging big chunks of ice.

"When we were close to the whale, Cousin Ole aimed the gun and fired a harpoon at the whale. Sometimes he would kill it with the first shot. Sometimes he had to shoot two or three times."

"Then what happened?" Torger asked.

"We pumped air into the whale so that it wouldn't sink. Then a larger boat towed the whale to the factory ship while we dashed away to hunt another whale."

"What happened at the factory ship?" Father wanted to know.

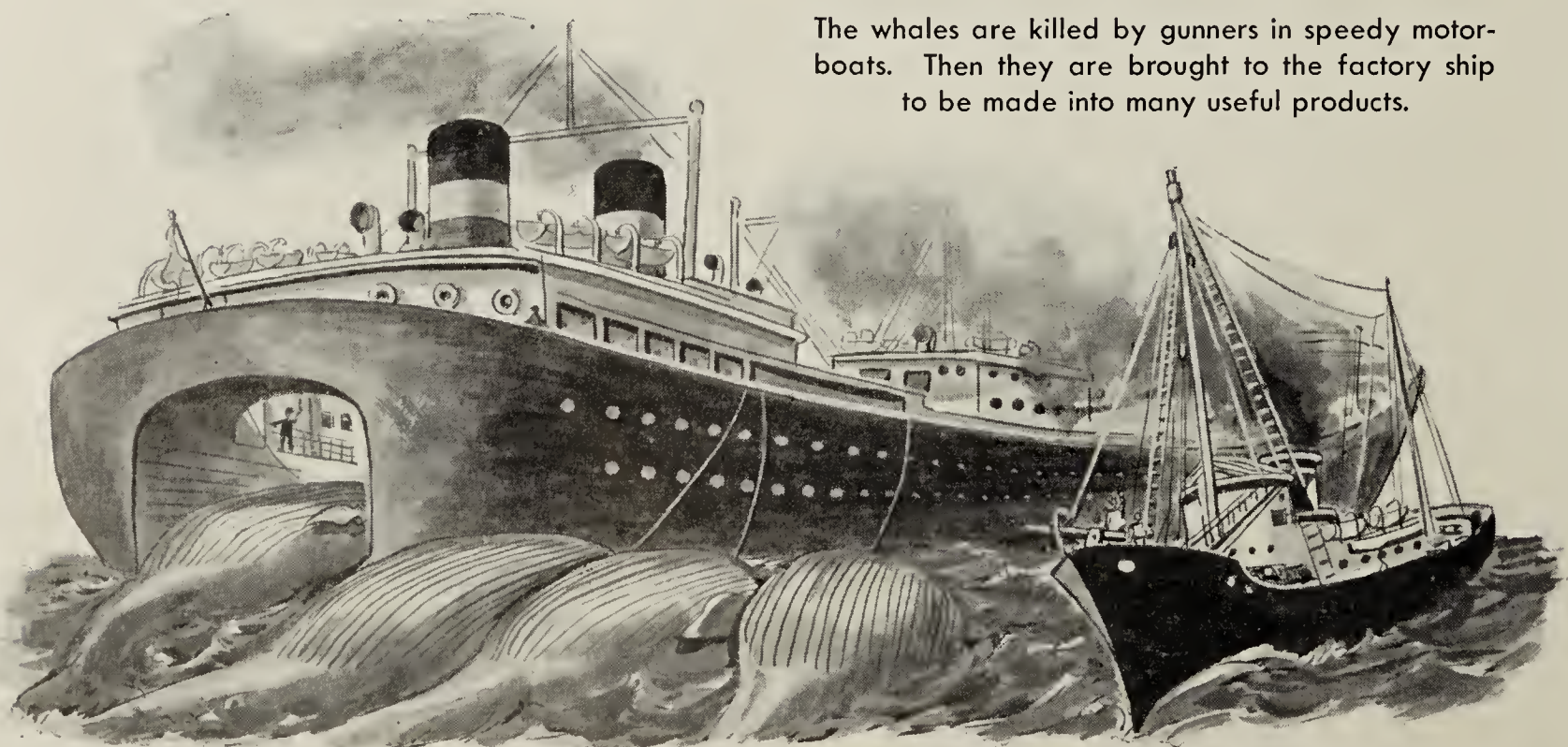
"The whale was pulled into the ship through a big hole in the stern. Then the real work begins. All the *blubber* has to be stripped off in big pieces. And a whale is so huge that the men have to cut steps in its side. Then they climb up on the whale with spiked boots.

"The blubber is full of fat, which is used to make oil for soap and many other products. Other parts of the whale are used to make medicine and vitamins and chicken feed and fertilizer. Whale meat makes good steaks, too. Nothing is wasted."

Mother came over to the men, smiling. "Be so good as to come to the table," she said. "I haven't any whale meat, Oscar. But perhaps you can find enough to eat without that."

"Just watch me!" said Oscar. He jumped up and went over to the table. "Look at that good pickled herring! And creamed codfish! Potatoes and peas and big ripe strawberries from our own garden! Milk and cheese and butter from

The whales are killed by gunners in speedy motor-boats. Then they are brought to the factory ship to be made into many useful products.







Find Torger's and Chris's communities on this map of fishing regions in the world. In which ocean do their fathers fish? Which continents have the largest fishing regions next to them?

our own cows! Such food as this I haven't seen since I left home, Mother!"

### Fishing Communities Near and Far

Fish are found along all the seacoasts of the world. But fishing is more important along some coasts than others. One reason is that some waters contain more food for fish. Where there is plenty of food, there are lots of fish. Look at the map to see where some of the best fishing waters are located.

As we continue our social studies, we shall discover that much of the fish is used as food for people. Some is used as food for dogs and cats. Certain kinds are made into fertilizer or pressed for oil.

We shall also see that fishermen take many kinds of sea food from the oceans. Shrimps, oysters, lobsters, clams, and crabs are some of the sea foods that people enjoy eating. Have you ever tasted any of these sea foods? Try them the next time you have an opportunity.

### DO YOU KNOW?

1. Why is fishing important in Norway?
2. How does the climate help the fishermen?
3. Why must each farm family in Norway work very hard?
4. How did Nels help with the haying? What did each of the others do?
5. What is a fiord? What is the land like near a fiord?
6. How are eodfish eaught and used?
7. What do you know about herring?
8. How are whales eaught?
9. What is work on a whaling ship like? How are different parts of a whale used?
10. What are some of the foods raised on the farms in Norway?

### LEARNING BY DOING

1. Can you list the ways in which fish and other sea foods are used?
2. Pretend that you are an artist visiting in Norway. Draw a picture of something interesting and write a story about it.

### BEING A GOOD CITIZEN

How did Torger and the rest of the family work together and help one another? Can you think of new ways to help your mother, father, sisters, or brothers?



## A New Look at Fishing Communities

### THINGS TO TALK ABOUT

1. Why is fishing more important along some coasts than others? Where are some of the best fishing regions in the world?

2. What is the best fishing season for Maine fishermen? For Norwegian fishermen?

3. Why can Norwegian fishermen do more fishing in winter than Maine fishermen?

4. How do Maine fishermen spend their time during the part of the year that they don't fish? What do Norwegian fishermen do in summer?

5. What makes fishermen's work dangerous? How has it been made less dangerous?

6. How many uses for fish do you know?

7. Read to your classmates parts of this unit that tell about: people who were brave; people who were helpful; people who were friendly.

8. Find Chris's and Torger's communities on a globe and on the world map in your Atlas. What ocean would Chris go across to get to Torger's home? In what general direction would he have to go?

### CHECKING YOUR SKILLS

Can you make an interesting report? Do your classmates like to listen when you tell about what you have read or what you have seen?

To make a good report, we need to know a great deal on the topic we are talking about. We should know the subject so well that we can make it clear to others.

A report is more interesting if we tell it in our own words. It is also more interesting if we plan it carefully, instead of telling anything we happen to think of.

Try using this outline in planning a report to give to your classmates.

1. Choose a good topic to talk about. It might be *a clambake, lobster fishing, farming in Norway*, or something else in this unit. Be sure that your topic does not cover too much. Your report should be about one thing only.

2. Read about your topic in your book and in other books if you have them.

3. Read again to see whether you missed anything the first time.

4. Pick out the most important ideas. There may be only two or three, or there may be more. Arrange them in good order, so that first things come first.

5. Write the ideas in your own words.

6. Decide what you need to tell about each of these ideas to help your classmates understand them.

7. Practice giving your report aloud when you are alone, or tell it to some member of your family.

8. Make your report to your classmates as if you were talking to them.

9. Ask the others what you did well, then ask how you can make a better report the next time.

### BEING A GOOD CITIZEN

Chris and Torger both tried to learn as much as they could about the work done in their communities. That could help them decide what they want to do when they grow up. What kinds of work in your community can you learn more about? What kind of work do you think you would like to do when you grow up?

### BOOKS TO ENJOY

Adrian, Mary, *Fiddler Crab*. Story of a sand fiddler crab.

Dean, Agnes L., *Good Luck, Mary Ann!* She visits in a cottage near the ocean.

Dudley, Ruth H., *Sea Shells*. Stories of lives of sea animals that live in shells.

Fuller, Harvey K., *Manuel Goes to Sea*. A boy goes to sea on a fishing ship.

Hogeboom, Amy, *Sea Animals and How to Draw Them*. Nine kinds of sea animals pictured, with directions for drawing them.

Johnson, Siddie Joe, *Joe and Andy Want a Boat*. They finally get a share in a fishing boat.

Molloy, Anne, *Bird in Hand*. A story of a Maine fishing village.

Olds, Helen D., *Fisherman Jody*. Ten-year-old Jody goes fishing on *The Flying Codder*.

Sauer, Julia L., *Light at Tern Rock*. About Christmas and lighthouses.

Tousey, Sanford, *Fisherman Tommy*. He learns about lobster fishing and clam digging.

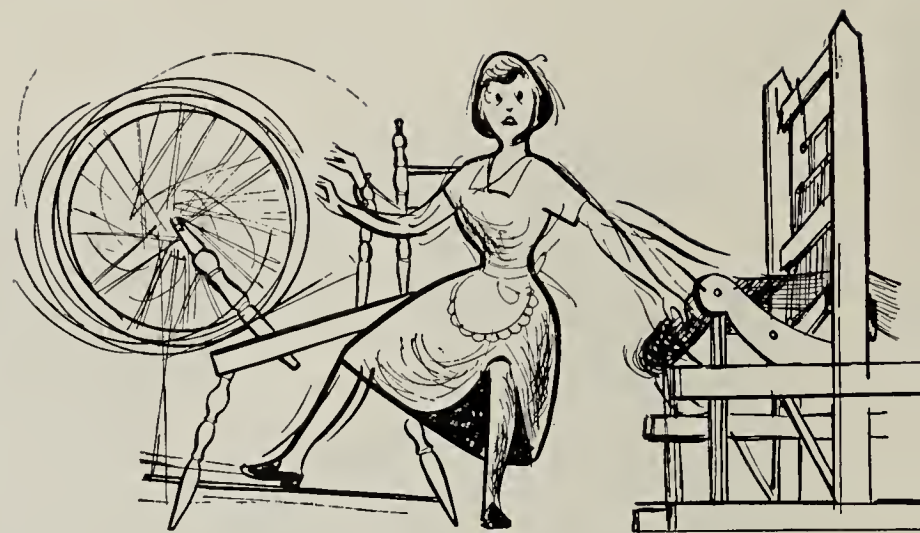




# Jane Ellen Visits a Cotton Mill

UNIT 5





## Living in a Manufacturing Community

Almost everything we use each day comes from factories. Our clothes, our furniture, our automobiles, and even this book, are made in factories. How many different things can you name that come from factories?

Some manufacturing communities are small. They may have one factory that makes only one product. Other manufacturing communities are huge cities. They may have hundreds of factories that make thousands of different products.

You will enjoy reading about Jane Ellen, who lives in a small manufacturing community called Millsboro in North Carolina. Her father works in a mill that makes cotton cloth. Can you find North Carolina in your Atlas?

This unit also takes us to Bombay, India, where Rama and Sita live. You will enjoy getting acquainted with these children who live in a large manufacturing community across the seas.

After reading these two stories, you will be able to answer the question—Would I like to live in a manufacturing community?

### I WONDER

I wonder whether I would like to work in a factory.

I wonder why factories are often found in towns and cities.

I wonder if I would have many new clothes if my mother had to spin the thread and weave the cloth to make them.

I wonder whether I would rather live in a manufacturing community in North Carolina or in India.

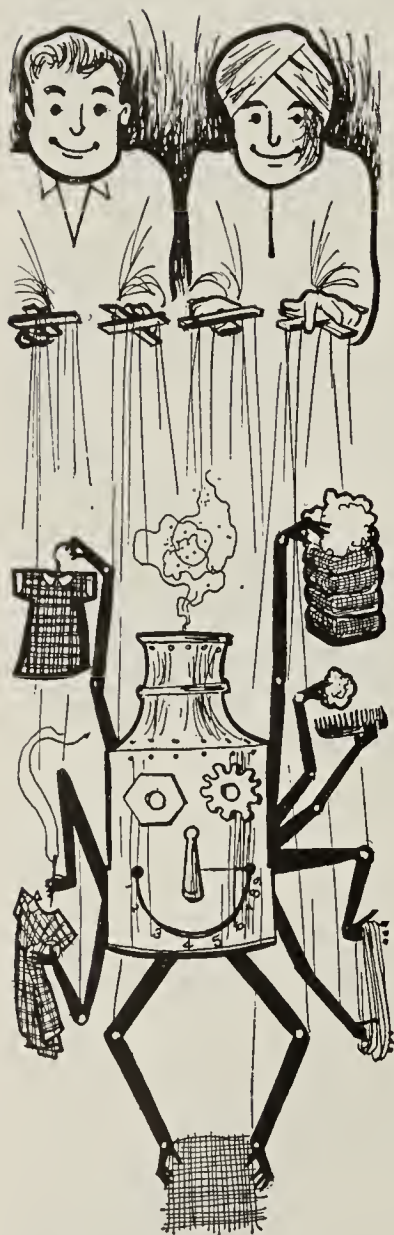
### WORDS WE NEED TO KNOW

carding  
curry  
erosion

fiber  
grits  
pass

Piedmont  
resource  
shuttle

textile  
utensils  
warp and woof







Jane Ellen has a feeding shelf for birds under the kitchen window. What kinds of birds spend the winter where you live? Do you ever feed them when it is hard for them to find food?

## The "Go-See" Club

Even before Jane Ellen opened her eyes that morning, she could tell it felt like spring. It was March, and of course she knew that winter in the *Piedmont* region of North Carolina wasn't over yet. But daffodils and winter jasmine had been blooming since January. She could smell the sweet-breath-of-spring under her window. And the air felt warm, like spring.

"Not spring to stay, but spring for a day," she thought to herself. Then she opened her eyes wide and said, "Why, I'm a poet." She repeated slowly:

*Not spring to stay,  
But spring for a day.*

She got up and dressed quickly and went downstairs. Her sister Sally and

her brother Lindsay were at breakfast with their mother. Their father had eaten earlier and had already gone to his job. He worked in one of the *textile* mills in Millsboro a few miles away.

Jane Ellen sat down and drank a glass of orange juice. Then she began stirring butter into the mound of hot *grits* on her plate. The Andrews family always had grits every morning. Grits and sausage, or grits and bacon, or sometimes grits and ham, and always jam and biscuits.

"I know we're old-fashioned, eating grits every morning," Mrs. Andrews told her neighbor, Mrs. Weaver. "A lot of folks don't bother with them any more. But I was brought up eating grits for breakfast. It seems to me it's a right healthy way to start the day."





Find Hockaday's Corners, the school, the textile mill, the electric power lines, and the river. What uses are made of this rolling land? Why are the fields next to the school planted in strips?

As soon as they'd finished, Jane Ellen ran outdoors to put some seeds on a shelf at the kitchen window. She was earning a Girl Scout badge by studying the birds. Lindsay had fastened a shelf where she could feed them.

Even before she'd scattered all the seeds two chickadees settled down and began eating. Then she saw the bright red flash of a cardinal, and the chickadees flew off to the bare branches of a dog-

wood tree. The cardinal always wanted the shelf to himself. Standing still for a moment, Jane Ellen heard the call of a mourning dove—"Ah, woe, woe, woe."

She was glad the family wasn't living in Millsboro any more. She liked it here in the country. The Andrews home wasn't on a farm. It was one of a little group of houses strung out along each side of the highway leading into Millsboro. There wasn't even a small town



nearby. Down at the crossroads stood a general store and service station owned by a man named Dave Hockaday. Everyone generally went to Millsboro to buy anything Mr. Hockaday didn't have on his shelves.

When Jane Ellen had finished feeding the birds, it was time to go to school. There were no schools close by. Sally, who was seventeen, rode in a school bus to the high school in Millsboro, six miles away. Lindsay, who was fifteen, and Jane Ellen, who was ten, rode in another school bus to a consolidated county school two miles away. The three of them walked down the road together that morning to Hockaday's Corners, where the buses would pick them up.

Sally's bus came first. "Have a good time on your 'Go-See' trip," she called back to Jane Ellen as she climbed into the bright orange bus.

## A Trip to Chapel Hill

Jane Ellen's class had formed a "Go-See" Club, and today they were going on another trip. They had already gone to see a lumber company, and one of the department stores in Millsboro, and a large grocery store. Today they were going to Chapel Hill. They would see the University of North Carolina. Then they would go to a Spring Festival which was being held on the University campus.

As soon as Jane Ellen's bus reached school, she found the boys and girls in her class waiting with Miss MacMullan, their teacher. Then a special bus drove up. They all got in, and Mr. Pendergraft, the bus driver, started off.

Before long he turned south into a highway that ran through farm country. But the fields were not wide and flat like those in Nebraska and other western farm

In the Piedmont, fields are not wide and flat like those in Nebraska. They are small, on rolling or hilly land. See how the highway curves around the hills.





states. The land was rolling, sometimes quite hilly. The road followed the rise and fall of the rolling land, and curved around the hills. Jane Ellen often saw higher hills in the distance.

She remembered a map in one of her books at school. It was colored to show that the land in the Piedmont of North Carolina was hilly and rolling. "But maps can't look the way the place does when you see it," she thought to herself.

Much of the land on each side of the road was covered with trees. Since it was March, the hickories and oaks and gum trees were still bare. Last summer's leaves still hung on the beech trees. But the maples were copper-colored with new flowers. Here and there the sun caught patches of rosy lavender in the woods, where the redbud trees were in bloom.

Farmers were at work in the fields that morning, getting the land ready for spring planting. Many of them were using tractors, but Jane Ellen saw several

men plowing with mules. Later on, the fields would be green with corn or tobacco. These were the two crops many of the farmers would be planting.

It was midmorning when they reached Chapel Hill. Mr. Pendergraft stopped the bus for a moment near a swinging white sign. "University of North Carolina," the girls and boys all read.

They rode through the campus with its green lawns and ancient trees. Brick paths crossed the grass here and there, leading to the widely spaced buildings.

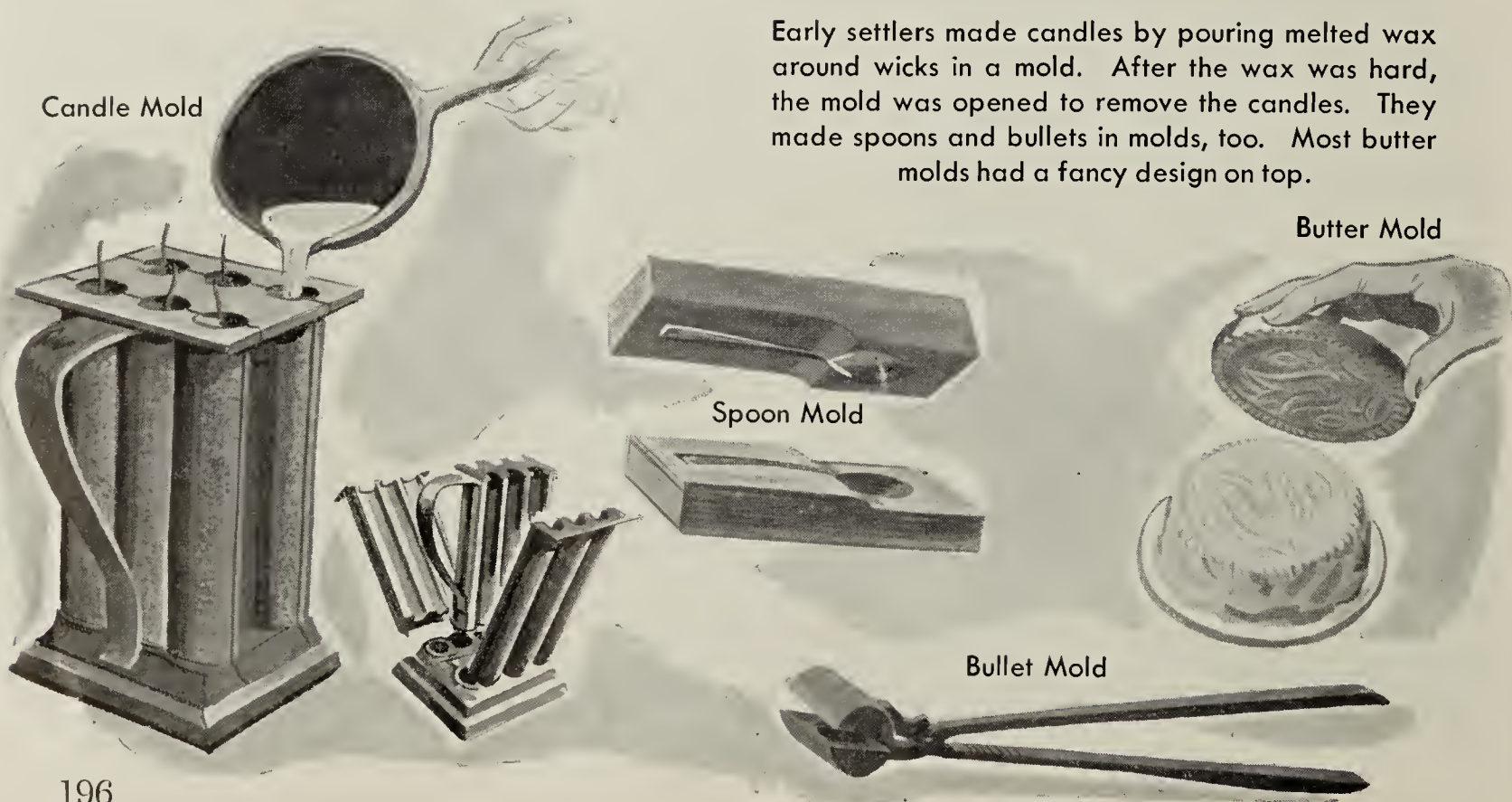
When the bus had finally stopped, they got out near a large brick building. "This is where the Spring Festival is being held," Miss MacMullan said.

### Spring Festival

She led the way between tall white columns, and they entered a large room on the first floor. Around the paneled walls stood a row of long tables.

"A special exhibit is being held this year to show the way things used to be

Early settlers made candles by pouring melted wax around wicks in a mold. After the wax was hard, the mold was opened to remove the candles. They made spoons and bullets in molds, too. Most butter molds had a fancy design on top.







At the exhibit the children saw workers making brooms, baskets, and chair seats by hand. In olden days, many families would not have had these things unless they made them themselves. Today, most of our furniture and household utensils are manufactured in factories.

made long ago," Miss MacMullan said. "In this room we'll see many old things that were made by hand. Then we'll go downstairs to see some North Carolina people who are still making things by hand in the old ways."

They started walking around the room. First they saw kitchen *utensils*: large iron kettles and skillets, pottery plates, jugs, and bowls, and spoons and bowls made of wood. They saw molds which had been used for shaping many things once made at home by hand. There were molds for candles, for butter, and for bullets, even a mold for shaping spoons.

Next were hand-woven baskets in many shapes and sizes. Then they saw a bright row of hooked and braided rugs

hanging from a line. There were hand-woven woolen coverlets. And next to the coverlets were quilts in a splash of color. Each quilt was made from many small pieces of material sewed together.

Jane Ellen saw one quilt in a pattern she knew. She always slept under a quilt like that when she was visiting her Grandmother Andrews up in the mountains.

"It's the Log Cabin Pattern," Grandmother told her. Grandmother had sewed the pieces together when she herself was a girl.

The rest of the tables were covered with dresses, men's suits, towels and sheets, and other household linens—all made by hand. The material in them



had been woven by hand from yarns spun by hand at home.

By the time they had finished looking at all the exhibits, everyone was hungry. So they stopped for lunch. After lunch they walked back to the exhibit building. This time they went down a long flight of stairs to another large room.

Here it was hard to know what to look at first. Near the doorway a man and two women were weaving seats for hand-made chairs. Several women near them were weaving baskets. Others were making brooms from broom corn. In front of the window a man was shaping clay into plates and bowls.

### DO YOU KNOW?

1. Where is Jane Ellen's home?
2. How is the land here different from the land near Sandra Clark's home?
3. How is farming in the Piedmont region different from farming in Nebraska?
4. What birds and trees did Jane Ellen see at home and on the trip to Chapel Hill?

### LEARNING BY DOING

Would you like to draw a picture of something Jane Ellen saw on her trip?

### BEING A GOOD CITIZEN

Jane Ellen wanted to learn all she could. She noticed everything along the way as they went on their trip to Chapel Hill. She paid attention to the exhibits. Does everything we learn help us become better citizens?

A potter makes things both by hand and by foot. Turning the lower wheel with his feet spins the top wheel, on which he is shaping clay into a bowl. Later, the pottery will be colored and baked in a furnace.







Carding is done in two operations. Pulling the cards in one direction straightens the fibers in a thin layer. A pull in the other direction gives a soft roll of cotton.



## Making Cotton into Cloth

At the other end of the room they all gathered around three women. The first woman, who said her name was Mrs. Merritt, had a pile of cotton beside her.

"This is the way cotton looks after it's been picked and the seeds have been taken out," she said.

She took up a handful of the cotton and gave each of them a small piece.

"It's like absorbent cotton," Jane Ellen said, feeling it.

"Yes, it is," Mrs. Merritt answered. "Quite a bit like absorbent cotton. Now pull it apart," she went on. "Do you all see lots of short fine threads?"

They nodded.

"They're called *fibers*," she told them. "The three of us are making these cotton fibers into cloth. To do this, three main steps are needed. First, we straighten all the fibers in the cotton. This is called *carding*.

"Next we spin the short fibers together

into a long strong thread. And last, we make cloth by weaving many of these threads together."

She reached down for some cotton from the pile. "It's my job to straighten the fibers," she said.

In each hand she held up a tool which looked something like a short wide hair-brush. But instead of having bristles, it was covered with sharp teeth.

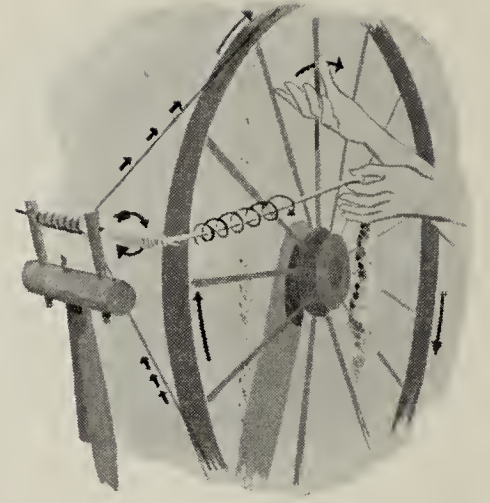
"These are called *cards*," she explained. "They are special tools for straightening all the fibers."

She put a little cotton on one of the cards. First she pulled the other card across this a number of times in the same direction. Then she drew the card quickly in the other direction. She held up the card with the cotton lying on it in a short fluffy roll.

"I've finished carding," she said. "Now the cotton is ready for spinning."

The woman next to Mrs. Merritt was working at a spinning wheel. She took one of the cotton rolls Mrs. Merritt had





A spinning wheel draws out the roll of cotton and twists it first into a fat thread. Then it twists that thread into a thinner, stronger one. Compare the picture of spinning wool by hand, on page 91.

finished, and fastened it to the end of the thread she had been spinning. With the help of the spinning wheel, she drew out the fluffy roll and twisted it into a strong firm thread.

"Why don't you see if you can spin some of the cotton Mrs. Merritt gave you?" she asked them. "Spin it between your fingers." They all tried.

"This thread I'm spinning is probably coarser than the thread your mother sews with," she said to Jane Ellen. "But except for that, they're much alike. If you untwist some of your mother's thread, you can see the fibers in it."

The third woman was weaving by hand at a wooden loom. First she showed the boys and girls some of the cloth she had woven.

"Do you see all these threads that go up and down the length of the cloth?" she asked. "And do you see the other rows of threads that go back and forth under and over those long threads?"

They all said "Yes, ma'am" politely.

"These threads have special names," she went on. "The threads that go up and down are called the *warp*. The threads that cross the warp are called the *woof*."

Jane Ellen repeated the words to herself: "Warp. Woof."

"All woven cloth has two sets of threads like that, one crossing the other," the weaver told them. She pointed to Jane Ellen's dress. "You can see them in your dress," she said. "Or in your pocket handkerchiefs. Some of you boys can see the threads in the shirts you're wearing."

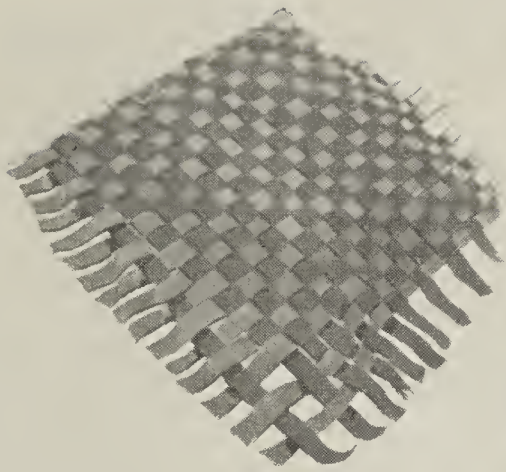
She turned to the loom.

"Here is the wooden frame that holds the warp in place while I'm weaving the cloth. The warp threads are on this big wide spool at the back of the loom."

She picked up a wooden *shuttle* with a thread fastened to it.

"I pass this shuttle back and forth between the long warp threads," she said. "It carries the woof back and forth





Warp threads are fastened to rods so that alternate threads can be lifted. The shuttle goes across under one set of threads and comes back under the other set, to make an under-and-over pattern.



across the warp. That is how weaving is done, adding one thread at a time."

She continued with her weaving. The girls and boys stood around watching.

"In the old days," the weaver told them, "most materials were made at home in just this way. And one woman often had to do it all. She had to straighten the fibers, spin the thread, and weave the material. Sometimes, when the family was large, one woman didn't have time to make all the cloth that was needed. Someone had to help her."

"It's mighty different these days, isn't it?" Miss MacMullan said. "With the machines in our textile mills, one person can make material for many others."

"Why do you weave things by hand?" Jane Ellen asked, "if machines can weave so much faster?"

"Many people think that hand-woven cloth is more beautiful than cloth made on machines in the mills," the weaver answered. "I can always sell all the cloth I make. And there's another rea-

son. Weaving is fun. I enjoy doing it."

Just then they heard the University bell ringing. Miss MacMullan looked at her watch.

"It's time to go," she said. "But first let's all say 'Thank you' to everybody for helping us."

They went back to the bus, where Mr. Pendergraft was waiting. In a few minutes they were on their way home.

### DO YOU KNOW?

1. What are the fibers of cotton?
2. Do you know how cotton is carded?
3. What does a spinning wheel do?
4. Can you explain how cloth is woven?
5. Why do some people still weave by hand?

### LEARNING BY DOING

Unravel some pieces of cloth and look for the warp and woof threads in them.

### BEING A GOOD CITIZEN

We learn to do hard things by doing easy things first. Men could never have made machines for weaving if people hadn't learned to weave by hand first. What are you learning that will help you do hard things later?





A concert by the North Carolina Symphony Orchestra is a big treat for the children in Jane Ellen's school.

## It's May Again

School was almost over for the year. Every day seemed to have a little extra excitement for someone in the family.

Last week it was Sally. Her class in high school had taken over the duties of the Millsboro city officials for one morning. Sally had been elected "Mayor-for-a-Day."

"Who ever heard of a lady mayor?" Lindsay had asked that evening, as he carefully repaired the plug for his mother's electric iron.

"Plenty of people," Sally answered.

Lindsay looked surprised.

"That's right, son," Mr. Andrews said. "I've read about plenty of towns and cities where the mayors are women. And they do a good job, too."

This week Jane Ellen and Lindsay were going to hear a concert. Every year the North Carolina Symphony Orchestra gave free concerts for thousands of school children in the state. On Tuesday it was coming to play for all the girls and boys in Jane Ellen's school.

By two o'clock that afternoon they were all in their seats in the auditorium. The players were in their chairs on the platform. Then the conductor of the orchestra took his place and raised his arms. The concert began.

The classes in the school had been studying the music for the concert. So everyone knew something about it.

Jane Ellen enjoyed it all, especially parts of "The Military Symphony" by



Joseph Haydn and "Work Song" by William Grant Still. In the "Work Song" she could hear the swing of a pickax.

Best of all she liked the part in the program where everybody sang with the orchestra. This year the song was "Sourwood Mountain." Jane Ellen and Lindsay already knew the song well. It was one of the tunes Mr. Andrews often sang around the house.

"I grew up on that tune," he used to say. "That's real old-timey music."

At the concert the verses were divided between the boys and girls, and everybody sang the chorus.

The boys began,

*Chicken a-crowing on Sourwood  
Mountain*

and then everyone joined in with

*Hoe-dee-ing-di-diddy-I-day.*

The girls sang the last verse:

*Ducks in the pond, geese in the ocean*

and once more everyone joined in with

*Hoe-dee-ing-di-diddy-I-day.*

It was a wonderful concert, but it was over too soon. Jane Ellen could hardly believe it when the music stopped. She'd like to be able to play in an orchestra some day, she thought to herself. Which instrument would she choose, she wondered, riding home on the school bus.

For several days she went around home humming the music she had heard. Sometimes she moved her hand back and forth as if she were playing a violin. Then she forgot about it. There were so many other things to do.

## Let's Go Fishing

On Saturdays Jane Ellen's father did not have to go to the mill. He worked Mondays through Fridays, and on Saturdays he was free.

This Saturday morning he started off by doing a few odd jobs around the house, with Lindsay to help. They cut the grass and trimmed the edges around the flower beds. Then Mr. Andrews fixed some stakes for the tomato plants in the garden. Lindsay put up a larger feeding shelf for Jane Ellen's birds.

"You've got the eatingest birds in the county, honey," her father said to Jane Ellen. She was holding the shelf in place while Lindsay fastened it.

As soon as they'd finished, Mr. Andrews called, "Who wants to go fishin'?" Jane Ellen and Lindsay both said, "I do." Sally appeared from nowhere. Mrs. Andrews came to the kitchen door and said, "I can fix us a picnic lunch in no time."

Sally helped her mother with the lunch. Mr. Andrews went next door to see if their friends, the Weavers, could go along. He and Mr. Weaver worked in the same mill in Millsboro. They rode back and forth to work together, each one taking turns using his car. The families knew each other well.

"The Weavers are coming, too," Mr. Andrews called to Mrs. Andrews in the kitchen.

Lindsay dug some worms. Jane Ellen brought the bamboo poles from the garage, and her father fastened them to the top of the car. In half an hour the two families were ready.



They drove up the highway until they came to a rambling one-story building with a sign: "Fred's Service Station—Bar-B-Q—Fried Chicken—Steak at All Hours." There they took a dirt road that soon brought them to the river. It wasn't long before Mr. Andrews slowed down and turned carefully off the road.

"Here we are," he said. It was the place where they often went fishing.

They were in a meadow by the side of a bridge. The Weavers stopped alongside. In a moment they were all out of the cars and ready to eat lunch. After lunch the men picked up their fishing poles, but everybody else began to walk away.

"We're going to do our fishing a little later," Mrs. Andrews told her husband. "Right now we want to walk up the river a piece."

"Up to the old mill, I suppose?"

She nodded. Mr. Andrews laughed.

"All right. We'll go, too," he said.

So the men put down their poles. They all walked along the wide shady path that followed the edge of the river. The air was still, and very sweet with the honeysuckle that covered the ground and hung in tangles from the trees. There was a thrush singing, and two squirrels were scolding each other.

### The Old Mill

Soon they heard the splash of water, and beyond a bend in the path they saw the old mill.

The unpainted walls had turned gray from the weather. The roof was full of holes. A large wooden wheel still stood in place on the side of the mill. A small stream of water from the river was falling over the wheel. This was the splashing they had heard.

"It looks as if it's been here a long time, doesn't it?" Mr. Andrews said, as they walked nearer. "Over a hundred years, wouldn't you say? In the old days

Early settlers used the power of falling water to turn wheels that ground wheat and corn. Water power made man's work much easier. But the mills had to be located by the side of the river. Farmers in the neighborhood carried their grain to the mill and then waited for it to be ground.





people used water power to help them with their work. But they had to do the work right by the side of the river."

"Folks have things lots better today," Mr. Weaver answered. "We still use the power of water to work for us. But we don't have to build the mills or factories at the side of the rivers any more."

He picked up a small rock and threw it into the water.

"Today we build power plants by the rivers, and those plants use water power for making electricity. Then the electricity is carried through the country by heavy wires to the places where it will be used."

Mr. Andrews nodded.

"Right to the mill where we work," he said. "Come on. Let's go fishing."

They all stood still for a moment. Once more the only sound was the splash of water. Then they went back along the path through the woods.

In a few minutes the men had settled down on the river bank with their poles and bait. Lindsay and the Weaver twins went to the other side of the bridge. Mrs. Andrews and Mrs. Weaver and the girls chose a place under a large gum tree. Soon they were all catching fish.

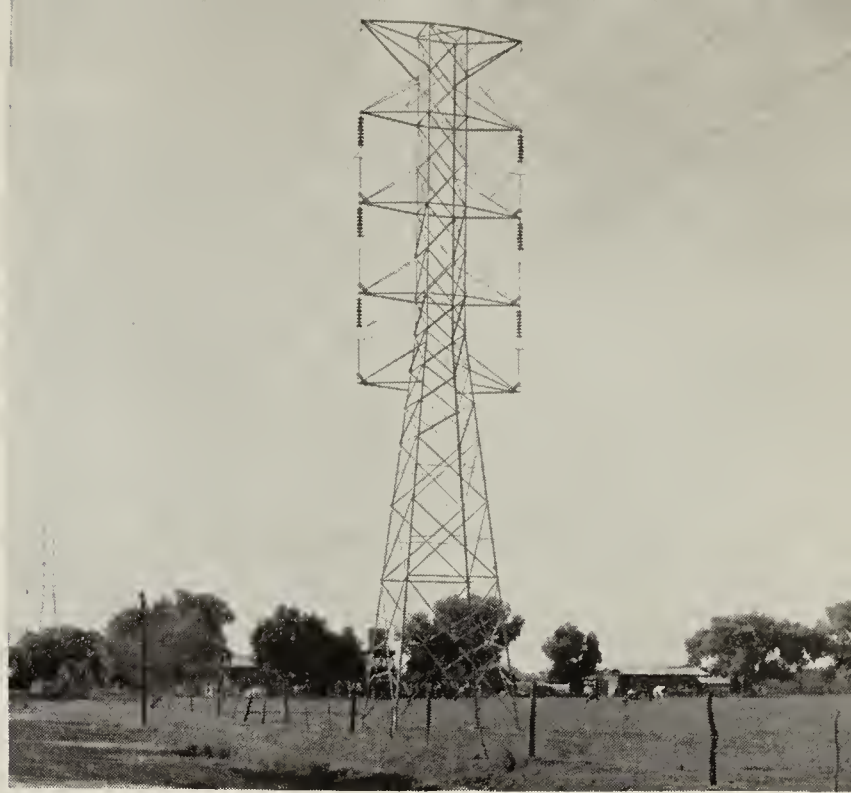
After a couple of hours even the men had to admit that they'd caught all they could possibly use.

"Let's have a fish fry," Mrs. Andrews said as they were packing up their things.

"Yes, let's," everyone answered at once.

On the way home Mr. Andrews pointed to several tall metal towers with cross-arms holding many heavy wires.

"There are some of the towers that



Today, water power is used to make electricity. Giant towers and strong wires carry the electricity to factories in faraway towns and cities.

carry electric power through the country," he said.

Jane Ellen thought they looked like mechanical giants walking in single file across the fields.

### Fish Fry

As soon as they got home, the men started cleaning the fish. Lindsay carried wood to the outdoor fireplace they had built last summer. Mrs. Andrews soon had a fire burning the way she liked it. Then she began heating fat in a kettle and two large iron skillets. Jane Ellen carried out the plates and silver and glasses, and ran down the road to invite Mr. and Mrs. Stansbury.

Sally mixed up some corn meal into batter, and dropped it by spoonfuls into the kettle of hot fat. The small balls of corn bread, called "hush-puppies," cooked quickly.

It was a wonderful supper. They all sat along both sides of the long picnic table. The fried fish that filled four



large platters quickly disappeared. So did piles of crisp brown hush-puppies.

The Weavers' dog, Rosie, walked around begging for a bite to eat. Jane Ellen gave her a hush-puppy, and she went off satisfied.

"They say that's how hush-puppies got their name," Mrs. Andrews said. "Dogs coming to a fish fry, whining for something to eat. Somebody threw 'em some corn bread to keep 'em quiet, and said 'Hush, puppy.' I wouldn't wonder if it didn't happen just that way."

"That was the best fish I ever ate," Mr. Andrews told them as they were all cleaning up. He always said that, every time they had a fish fry.

### DO YOU KNOW?

1. What special days did the Andrews children enjoy near the end of school?

2. How do the members of the Andrews family co-operate, or work together? How do they co-operate with their neighbors?

3. What did the old mill look like? How had it worked for people in the old days?

4. How is water power used in factories that are far from streams?

5. How is fishing near Jane Ellen's home different from fishing at Courage Cove?

6. How did hush-puppies get their name?

### LEARNING BY DOING

Write some riddles based on things you have read about in this part of the story. Make your riddles interesting without giving away the answers. Can you answer this riddle? "I am long and thin. I am made of bamboo. The family used me to catch fish. What am I?"

### BEING A GOOD CITIZEN

The Andrews family enjoy simple things, such as music, fishing, working in the yard, and visiting with their neighbors. Do you think we must spend money or go away from home to have a good time? What things do you enjoy that also help to make others happy?

The Andrews family and their neighbors will have fun at this fish fry. Mother and Sally are cooking piles of fried fish and cornbread balls. Jane Ellen is keeping the dog quiet with a "hush-puppy."







Rainfall is important to us for several reasons. Without rain, we would not have our useful and beautiful forests or the farm crops that help feed and clothe us. Rain also gives us water power for making electricity, and the water supply that we use in many ways.

## One Sunday Afternoon

It was July, and the days were hot with the breathless heat of midsummer. Lindsay was keeping a record of the temperature. His chart showed that it had been 90° or more for ten days in a row. Jane Ellen and Lindsay, who always went barefoot all summer, could hardly walk down to Hoekaday's Corners because the road was so hot.

There had been very little rain during those ten days of heat. Lindsay was keeping a record of rainfall, too. A couple of times it sprinkled, but it wasn't enough to settle the dust.

Sunday afternoon, the Andrews family were all sitting on the porch. They were talking about the weather, the way people often do.

"This weather's hard on farmers," Mrs. Andrews said. "It's too dry to be good growing weather."

"We get plenty of rain during a year's time," Mr. Andrews answered. "I was reading about it in the morning paper. We have so much rain that we take it for granted. But as soon as there's a little dry spell like this, we begin to see how necessary rainfall really is."





Many farmers in the Piedmont make their living by raising dairy cattle.

"Let's see how many ways we can think of in which rain is important," Lindsay suggested. "Farmers need rain for their tobacco and corn and other crops. And for their farm animals, too. We must have rain for our vegetable garden."

"How about trees?" said Sally. "Our teacher told us that they're now a valuable *resource* in North Carolina. They need plenty of water."

"Birds must have water," Jane Ellen said. "I have to fill the bird bath two or three times a day. And wild animals must have water. And of course the fish in all the rivers."

"Rain prevents forest fires," Lindsay said. "When everything's dry like this, there's more danger of fires. They destroy your trees, Sally, and your birds and wild animals, Jane Ellen."

"And what about the water power for making electricity?" Mr. Andrews asked. "If there isn't enough rain, the rivers may not have enough water to turn the wheels that make electricity."

"Don't forget all the water we use for drinking and bathing," Mrs. Andrews

said. "And preparing meals. And washing dishes and clothes."

Mr. Andrews jumped to his feet. "Come on, everybody. It's time to ride out to see Grandfather and Grandmother. We'll catch a little breeze on the road." The Andrews family generally drove out to see Mrs. Andrews' parents, the Lindseys, on Sunday afternoons. In a few minutes they were on their way.

### A Road Through the Hills

"I always like to come out this road," Mrs. Andrews said. "It's such pretty rolling country. Sometimes the hills in the distance look blue."

They passed many fields of tobacco. The plants were all standing at the same height because the farmers had broken off the tops. They did this to keep the plants from blossoming and going to seed. The farmers wanted all the strength of the plants to go into the leaves.

Mr. Andrews pointed to a large sloping pasture where cattle were grazing quietly.

"Do you remember that place two or





Heavy rains have cut deep gullies in this hillside. Now look at the picture below, taken four years later.

three years ago?" he asked. "Dave Hockaday was telling some of us about it at his store the other day. People named Creel live there, you know. Well, they'd been growing tobacco for years, but they never had a very good crop. A lot of their land was steep, and there was nothing to hold the soil in place. Every year the rain washed away more of the soil."

"We didn't list the bad things that rain can do, did we?" Mrs. Andrews said. "That's one of them."

"What happened on that farm?" Lindsay asked. Lindsay never liked to leave things unfinished.

"The county agricultural agent talked the Creels into changing to dairy farming. They planted pastures and got some good dairy cows. Now look at the place! They're doing real well, Dave says. It just shows we still have a lot to learn about using our land, doesn't it? I mean planting crops that will put the land to the best possible use."

"And stop *erosion*?" Jane Ellen asked.

Trees and bushes planted in the gullies act as dams to keep the soil from being washed away.





"Yes, and stop erosion," her father answered. He sounded surprised. "Tell me, honey, how do you know about erosion?"

"Our class at school had some moving pictures about erosion. They showed us how rain can wash away the soil and ruin the land."

"I see." Mr. Andrews slowed down and steered carefully around a turtle that was crossing the road. "We never learned about things like that when I was in school."

In a few minutes he turned into the Lindsay driveway.

### Out Under the Trees

The grown folks always sat and talked during these Sunday visits. Jane Ellen often wandered around the place to see what she could discover. On their last visit she had found two empty birds' nests. One was on a low branch of a dogwood tree and the other was in the hedge. But today was too hot to do a thing. So she sat in a swing hanging from a big oak tree, near the others.

Her father and Grandfather Lindsay were talking about the way the Creels had changed over from tobacco to dairy cattle.

"I know they're doing well," Grandfather said. "But don't forget this, Clint. Before they could make a living from dairy cattle, they had to have someone to buy their milk. You have to have a market before you can make any money raising things or making things."

"That's right," Mr. Andrews answered. "Dairy farmers have a good market around here, now that we're getting so

many new mills and factories. Dairy farmers can sell to the milk companies in town. And the milk companies sell to us folks working in and around Millsboro."

"Come on, Sarah," Mrs. Lindsay said to Jane Ellen's mother. "Let's go fix a little supper."

It wasn't suppertime yet. Maybe they want to talk about something besides cows, Jane Ellen thought. Sally followed them, but Jane Ellen stayed in the swing. She gave it a push now and then with one foot, and then "let the old cat die."

"This all shows how our work is tied up together, doesn't it?" Mr. Andrews went on. "The Creels can make a living from dairy cattle because I'm making my living in the mill. I can work in the mill because the Creels and a lot of other people buy what I help to make. They supply me with the things I need."

"It sounds as if you and the Creels might starve without each other," Grandfather said, laughing. "That wouldn't be far wrong, would it? It's the same with almost everybody nowadays. We don't any of us try to produce all the things we need any more, the way folks used to in the old days. Everybody buys what others have produced."

Lindsay was very quiet, listening. Jane Ellen got up and walked toward the house. At last the sun was down behind the trees.

"That's certainly true," Mr. Andrews said. "Look at all of us here in the Piedmont. Factory workers and farmers need each other. That's true for other parts of the country, too."



"Who do you think made the shoes you and I are wearing? Some men up around Boston, I suppose. But the sheets on their beds may have been woven in the Millsboro mill. The beds they're sleeping on may have been made in North Carolina, too.

"A farmer in Nebraska may be wearing overalls made here in North Carolina. But don't you suppose the bread

on the shelves in our grocery stores was made with the wheat he raises?"

"I'd like to look on Mr. Hockaday's shelves," Lindsay said. "I'd like to see where the things come from."

Grandmother came out on the porch.

"Supper's ready, you all," she called.

"What we're saying, Clint, is this."

Grandfather took his son-in-law's arm.

"We all need each other these days if

Different regions of our country depend upon other regions to furnish them with some of the things they need. What do the workers in Piedmont North Carolina send to other regions? What do they get from workers in other parts of the country? What products are sent out from your community?





we're going to get along. Here in this county . . . in North Carolina . . . and anywhere else in this country."

"Why stop with that?" Mr. Andrews put his hand on Lindsay's shoulder as the three of them walked toward the house. "Maybe the same thing's true all around the world. Countries can't get along very well without each other these days, either, can they?"

### **In the Cool of the Evening**

"This is certainly iced-tea weather," Grandmother said as they all found their places. She put a big pitcher of it on the table. There was some sliced ham that Mrs. Andrews had brought along, potato salad, pickled peaches, and a bowl full of sliced tomatoes and cucumbers from the garden. Sally had made a batch of biscuits, in spite of the heat. And there was damson jam—Grandfather's favorite.

When they'd finished, the women washed the dishes. Then they joined the men in the dusk under the trees.

As Jane Ellen walked across the lawn, she saw lightning bugs flying low above the grass. She caught one and held it cupped loosely in her hand. She wanted to watch its light flashing on and off.

They hadn't been sitting there long when a breeze stirred the leaves overhead. They saw lightning on the distant rim of the sky. The wind suddenly grew stronger.

"Come on, folks," Mr. Andrews said. "We'd better get home. I think we're going to have some rain."

They carried in the cushions and turned over the chairs. Grandmother

and Grandfather Lindsay decided to stay out on the porch and enjoy the breeze. The Andrews family was soon on its way.

They didn't get home in time. It was already raining when Mr. Andrews stopped the car. They ran into the house between the drops.

"I don't mind getting a little wet," Mrs. Andrews said. "Do you feel that breeze? Isn't it wonderful?"

It was still raining when they went to bed, and it rained all night.

"Million-Dollar Rain Covers State," the headline in the next morning's paper announced.

"It might really be worth that much, too, if you add up all the things we were talking about yesterday," Mr. Andrews said.

### **DO YOU KNOW?**

1. In what ways is rainfall important to the people of North Carolina?
2. Why did the farmers break off the tops of their tobacco plants?
3. What is meant by erosion? What can be done to stop it?
4. Why do factory workers and farmers need each other? How do people in other parts of our country help us? In what ways do countries need other countries?
5. Why was the rain a "million-dollar rain"?

### **LEARNING BY DOING**

Make a list of things that are raised or made near your home. Can you make another list of things that we get from other parts of our country or from other countries?

### **BEING A GOOD CITIZEN**

How does rain help with conservation, or taking care of things in nature? How did the Creel family help? What have you seen others do? How can you help with the conservation of birds and wild flowers?



# Open House at the Mill

September had come, and Jane Ellen was back in school. It was fun seeing everyone again, and being in a new grade. On the first day she explained to the teacher about her name.

"It's Jane Ellen," she said. "Jane after one grandmother and Ellen after the other grandmother. No one ever calls me Jane."

Although school had begun, many summertime activities were still going on. Nights were generally cool, but the days were almost as hot as midsummer. So the swimming pool at the Community Center was still open, and the softball teams were still playing. Lindsay was bat boy for the mill team, and the whole family often went to the games.

But Jane Ellen wasn't thinking about softball as she rode home from school on Thursday afternoon. She was thinking about the next two days. The mill was going to hold its Open House and give its annual banquet.

The workers had invited friends and relatives to come to Open House at the mill on Friday. Work would go on as usual. The visitors would be shown around so that they could see all the different things that were being done.

On Saturday evening the mill officials would hold their annual banquet. Workers who had been with the mill for five years or more were to be the guests. The families of some of the workers were also invited.

This is the street in Millsboro where many of the mill workers live. The houses are close to the mill, and there are nice lawns where the children can play.







Jane Ellen and her grandfather are looking at the SAFETY sign outside the mill. In a factory, where there are big machines and many workers, everyone needs to be reminded to work safely. If one person is careless, he may hurt himself or some other worker.

When Jane Ellen got home from school that Thursday, Grandmother and Grandfather Lindsay were there. They'd come in for a visit, to go to the Open House and the banquet. Grandfather had worked at the mill for a long time. Then he had retired, and he and Grandmother had moved to the country.

"I'm an Old Timer now," he had said to Grandmother, when the mill sent them a special invitation to the banquet. "I'd like to go back and see how the other Old Timers are getting along."

Friday morning Mr. Andrews left for work as usual. Sally, Lindsay, and Jane Ellen went to school. After lunch Mrs. Andrews and the Lindsays drove by for the three children, and they all rode to the mill. On each side of the street leading to the mill were rows of small houses, all alike. Some of the mill workers lived here.

As Mrs. Andrews parked the car, Mr. Andrews came over and joined them.

He had finished his work for the day, and another man had taken his place in the mill.

### Safety First

"There's something that's new since I was here," Grandfather Lindsay said. They were going down the walk that led to the mill. He was pointing to a large sign in front:

ON THE JOB

SAFETY

BEGINS HERE

"That's a real good idea," he said.

"Look at the other side," Mr. Andrews answered, after they had walked past the sign.

They all turned around, and Grandfather read aloud:

OFF THE JOB

SAFETY

BEGINS HERE — TAKE SAFETY HOME

"What's the idea of that?" he asked.



"Our safety director had those signs put up," Mr. Andrews said. "You remember how the mill's been trying for years to stop accidents at work. Moving belts on machines are covered, so that a worker's hands or clothes can't get caught. Other moving parts are fenced off by heavy bars, so that a worker can't get too close. They've thought of safer ways of doing the work, and they've cut down a lot on the chances of fire.

"Last year the mill had the best safety record ever made. Not much time was lost because of accidents on the job," Mr. Andrews continued. "But there were many workers absent because of accidents that happened while people were away from the mill. Most of those were automobile accidents, the safety director told us. Now he wants us to practice safety off the job, away from the mill."

He pointed to a neat wide path. "Let's go to that building in the corner," he said to the family. "That's the best place to begin."

They walked on.

"Here we are," Grandfather said, as they reached the corner.

"You three grownups all know pretty well what everything's about," Mr. Andrews said. "So I'll explain things to the young folks. Especially Jane Ellen, since it's her first trip through the mill. You all go ahead, and we'll meet you at the car."

When bales of cotton are opened, the cotton is tightly packed together. So the first step in a textile mill is to put the cotton into a machine that will make it light and fluffy again.

They walked toward an open doorway. "This will be a noisy trip," he said. "Keep close to me and listen carefully. It's hard to hear when the machines are all running."

### The First Step

They went into a large room with two rows of machines down the middle. In front of them on the floor were several piles of closely packed cotton. Now and then a couple of men lifted some cotton from the piles and tossed it into the machines.

"This is the first step," Mr. Andrews said. "The machines are pulling the cotton apart and making it light and fluffy."

He pointed to large brown bales along the walls. "That's cotton in those unopened bales," he said. "It comes to us pressed together into those large tight bundles. We have to make it light and fluffy again."







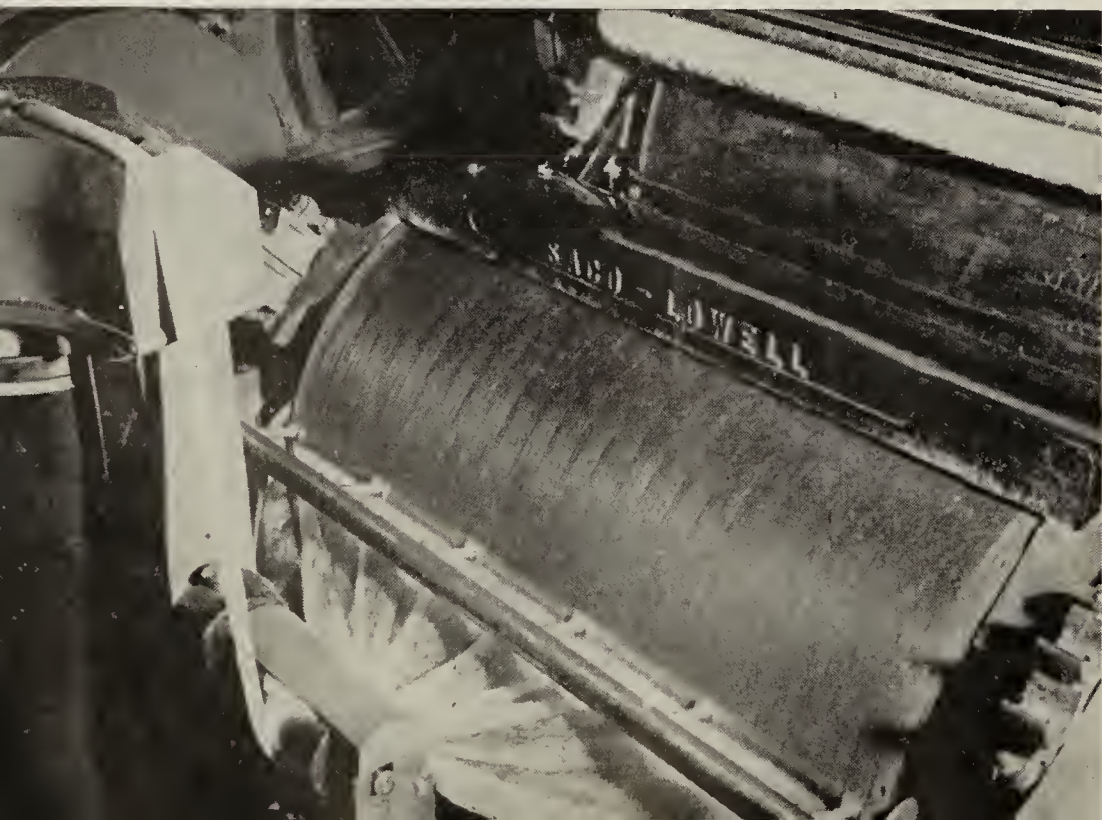
This is cotton ready to be carded. In a mill, carding is done by big cylinders covered with rows of tiny wire teeth. As the cotton passes between the whirling cylinders, the fibers are straightened and formed into a thin layer.

"Where does the cotton come from?" Lindsay asked, raising his voice above the noise. "From North Carolina?"

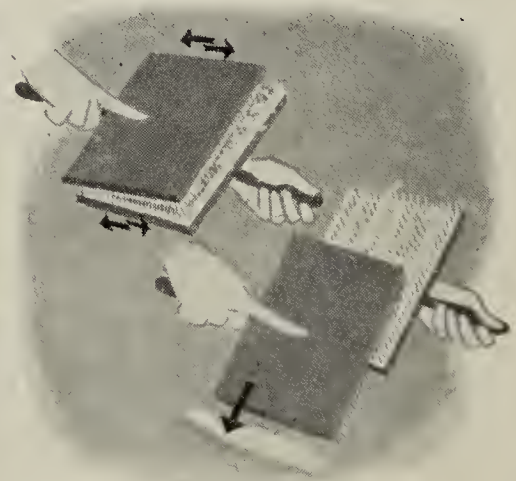
"No, it doesn't. You'd expect it to, because North Carolina farmers grow a lot of cotton. But cotton isn't all alike. Cotton grown in one place may have longer fibers than the cotton grown somewhere else. Different lengths of fiber are used for different things. This mill needs cotton with fibers that are a little longer than most of the cotton grown in North Carolina."

In the next building there were several different kinds of machines with cotton passing through them. Some of the machines were taking out any trash that had been left in. Others were carding the cotton to straighten the fibers.

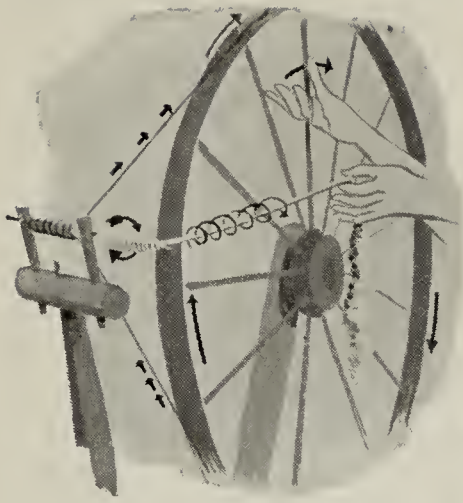
Then the visitors saw machines from which the cotton was coming out in a soft fluffy "rope" about an inch wide. This "rope" seemed endless. Except for that, it made Jane Ellen think of the rolls of cotton she had seen Mrs. Merritt carding at the Spring Festival.



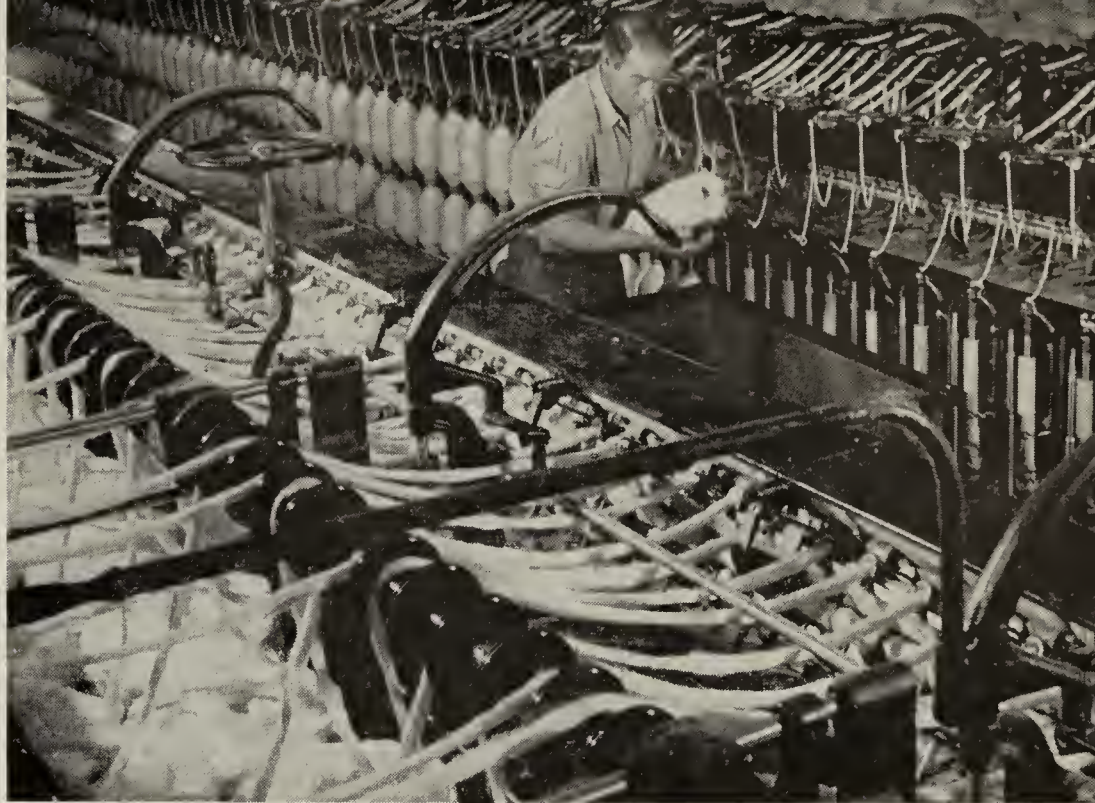
The carding machine does the same two operations that are done in hand carding. It straightens the fibers in a thin layer, then rolls them into a soft "rope."







Like a spinning wheel, the spinning machines draw out soft "ropes" of cotton and twist them into smaller threads. The threads may be spun several times before they are fine enough for weaving.



## Spinning and Weaving

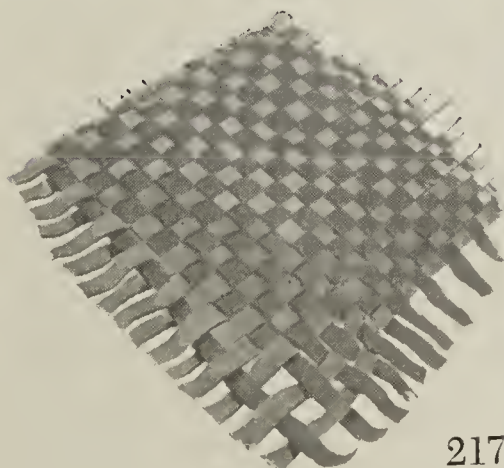
"Is it ready for spinning now?" she asked. Her father nodded, and led the way into the next room.

"This is where the spinning begins," he said. The soft cotton "rope" was passing through machines. "These machines are giving the 'rope' a pull and a twist, much the way a woman does when she is spinning. When the machines have all finished, we have thread that is ready to be woven into cloth."

They walked toward another door. "We'll go see the weaving now," Mr. Andrews said. He turned to Jane Ellen. "You know, that's where I work. I'm called a loom fixer, but this doesn't mean that I only repair the looms. There are two big parts to my job. First I have to set up the looms so that they'll weave the kind of cloth needed. Then I must keep them in good working order, so that they'll weave perfect cloth."

He opened the door. "There are a thousand looms in here," he added as

A loom run by machinery doesn't look much like a hand loom, but it does the same sort of work. A shuttle carries the woof back and forth across the warp, to make an under-and-over pattern of threads.







Just imagine how noisy it is in this room when a thousand looms are all working at once! The shuttles go "clack, clack, clack" as they fly rapidly back and forth.

they went in. Machines stood in long rows, loom after loom, row after row. The large room was full of looms, and every single one of them seemed to be busy.

The floor shook a little with the movement of a thousand looms at work. And the noise was so loud that it shut out everything else. When Jane Ellen stood near one loom, she could hear a rapid "clack, clack, clack" as the shuttle flew back and forth. But with a thousand looms at work, the thousand "clack, clack, clacks" filled the air with a roar.

Jane Ellen saw only a few workers. All the weaving was being done automatically. The workers were there in case anything went wrong.

The looms were weaving constantly and very rapidly. Jane Ellen watched a shuttle flying back and forth. It went so fast she could see only a blur. She

tried to count the blurs, to find out how fast the shuttle was flying. Did it make sixty trips a minute? Or more? It went so fast she couldn't be sure.

She remembered the hand weaving she'd seen on her trip to Chapel Hill last spring. "That was so slow," she thought to herself. "Miss MacMullan told us the shuttle went back and forth about six times a minute. But the weaver had to pass the shuttle from hand to hand."

They watched for a while. Then they went on through many work rooms. They saw long wide pieces of material as it came off the looms. Workers inspected the cloth to make sure it was perfect.

After it was bleached until it was white, other workers cut it into lengths. Then it was made into sheets or pillowcases. These were all carefully folded, wrapped in plastic, sealed, and labeled.



Then they were packed in heavy cardboard boxes, ready to be shipped.

"Where do they all go?" Sally asked, as they walked back to the car.

"Anywhere and everywhere," her father answered. "You could find our sheets any place in the country, from Maine to Louisiana, in New York City or in Portland, Oregon. And right here in North Carolina, too."

They found the rest of the family waiting for them. They all squeezed into the car, and Mr. Andrews drove away.

As soon as they got home, they settled down on the porch. Sally brought out some cold lemonade.

### What Jane Ellen Remembered

"Well, Jane Ellen," her father asked, "how did you like your first trip through the cotton mill?"

"It was wonderful," she answered. "But I didn't know it would be anything like that."

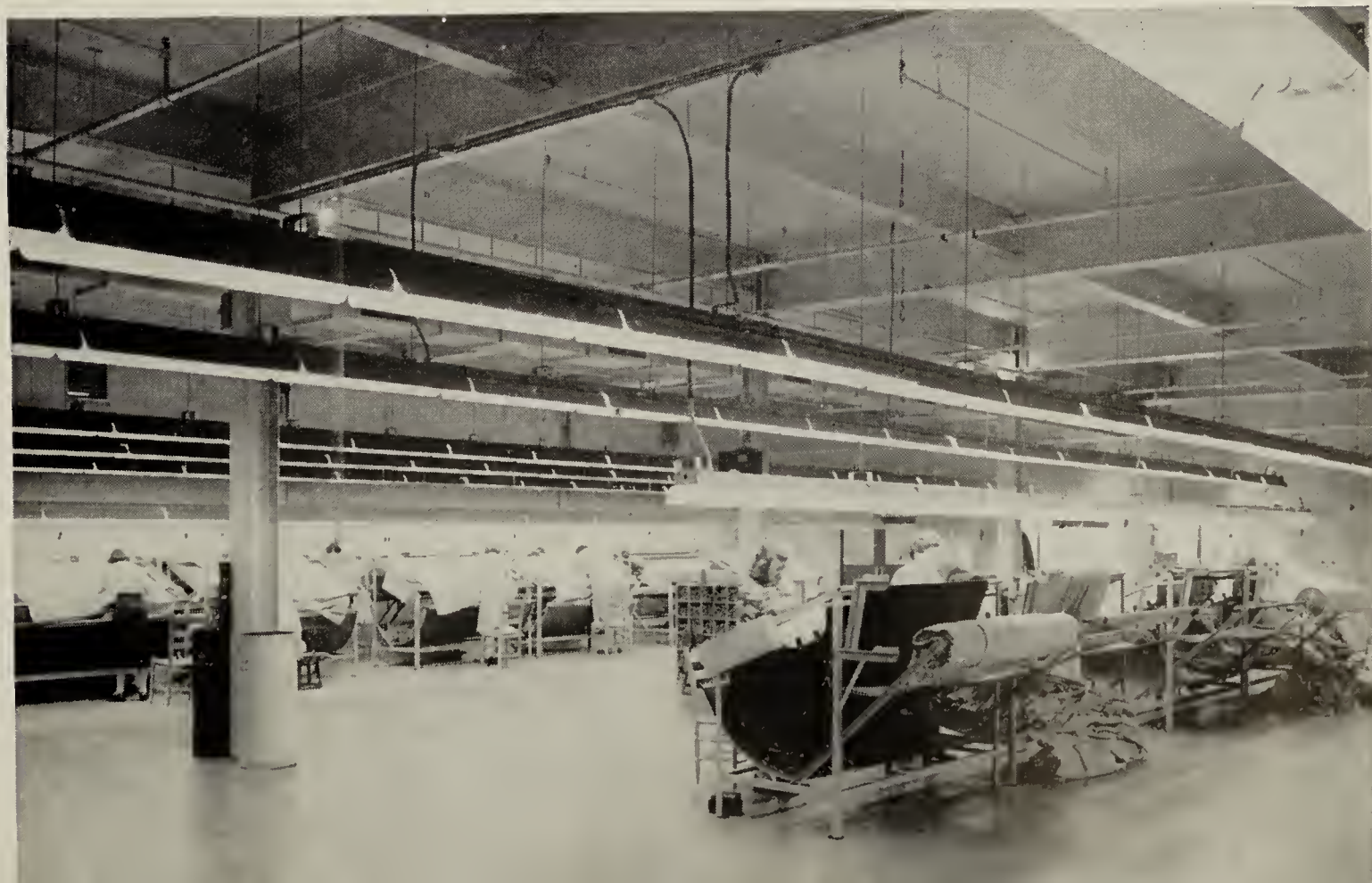
"What surprised you most, honey?"

She thought for a moment. "Three things, besides all the noise," she said. "I was surprised that so many of the workers were women. And I was surprised that some of the big rooms full of machines had so few workers in them. The loom room, especially."

Mr. Andrews nodded. "You're a good reporter," he said. "The machines really do the work, don't they? It doesn't take many people to keep the machines working. Once I've set 'em up," he added, laughing. "Now what was the third thing?"

"When I went to Chapel Hill, I saw three women doing the three main jobs of making cotton into cloth," she answered. "One was carding. One was

This is the cloth inspection room in a textile mill. Big bolts of cloth are examined on glass-topped tables that are lighted from below. This makes it easy for the inspectors to see any broken threads.







After the cloth is bleached to make it white, it is cut into lengths. Other workers hem the material to make sheets and pillowcases.

spinning. One was weaving. In the mill there were many different kinds of machines to do what the three women were doing.”

“You’re right,” her father said. “It takes more than three kinds of machines to turn cotton into cloth. But I don’t believe we’d want to go back to making cloth by hand, do you?”

The sheets and pillowcases are carefully folded, wrapped in plastic, sealed, and labeled. Then they are packed in heavy boxes, ready to be shipped to stores all over the country.



Sally poured more lemonade for everyone.

Mr. Andrews said, “I read somewhere that it would take 10,000 or more women with spinning wheels to spin as much thread in a day as one worker can spin in a day using modern machines.”

Lindsay whistled in surprise. “You make my head spin,” he said.

### DO YOU KNOW?

1. Why is safety important in a big mill like the one where Mr. Andrews works?
2. In what ways do the mill owners try to protect their workers?
3. What is the first step in getting the cotton ready at the mill?
4. Why isn’t the cotton raised in North Carolina used in this mill?
5. How is machine carding different from carding by hand? How are the two alike?
6. How is machine spinning different from spinning by hand? How are the two alike?
7. How is machine weaving different from weaving by hand? How are the two alike?
8. What did the workers do with the long pieces of cloth that came from the looms?
9. What things that Jane Ellen saw in the mill surprised her most? What was the most surprising to you?

### LEARNING BY DOING

1. Ask your parents about safety signs and safety practices where they have worked.
2. Can you make some good safety signs for your school?
3. Ask your mother to help you make a list of the ways that cotton cloth is used in your home.
4. Some kinds of cotton cloth are: muslin, gingham, voile, and lawn. There are many others. Find samples of as many kinds as you can and make an exhibit. Label each one.

### BEING A GOOD CITIZEN

Do you think that the owners of mills and other plants should try to protect their workers? Why? How should people try to protect themselves? What safety practices do you follow?





Jane Ellen and her grandparents are eager to go to the mill banquet. They hope that the rest of the family will be ready soon.

### A Surprise for Grandfather

The next day the Andrews family didn't do much of anything until late in the afternoon. Then they all dressed in their Sunday best. Everyone was going to the mill banquet, even Lindsay and Jane Ellen. The families of the Old Timers had been especially invited.

When they reached the Community Center in town, officials from the mill were at the door greeting everyone. Before Jane Ellen went in, she could hear that low buzz which is made by a roomful of people all talking at once. Soon they were seated at long tables, and dinner was served.

As soon as they had finished their desserts, one of the mill officials stood up and tapped his glass with a spoon. They all stopped talking. First he read

the names of the 15-Year Club. Then he gave those workers silver pins in the shape of the number 15 to show how long they had been working at the mill. After that, he read the names of the 25-Year Club, and gave each one a silver pin the shape of the number 25. Then he read out the 35-Year Club, and gave them pins. There were only a few of them.

At last he asked the Old Timers to come forward. This was the moment that the Andrews family had been waiting for. The Old Timers had worked at the mill until they had reached the age to retire.

Mr. Sinclair, the manager, made a speech. Then he handed each one of them a box. The men and women held up the open boxes for all to see. The mill had given each one a gold watch.



The Old Timers huddled together in a group for a moment, whispering. Then they stepped back a little, leaving Grandfather Lindsay by himself. Grandfather made a speech of thanks for all of them.

"We're Old Timers," he said, "but I'm not going to talk about the good old days. Some of the old days were good, but a lot of them weren't. I think these days are a lot better."

He went on to tell about the way things used to be.

"I wasn't 13 years old yet when I started to work in the mill. I should have been in school. Now only grown folks work. And they work only eight hours a day and five days a week.

"Twenty or thirty years ago," he continued, "we worked six days a week and maybe eleven hours a day. That's a big difference. With more time at home, you all have a chance to do things for yourselves."

The other Old Timers nodded.

"When I started out," Grandfather went on, "everybody lived in mill houses close to the mill. We were all near enough to walk to work. We bought our things at a mill store. We never got very far away from the mill.

"I can tell by the size of the mill parking lot that a good many of you have cars. I suppose you drive to work every day. Maybe you live in another part of Millsboro. Maybe you live outside the city, where you have room for a garden and some chickens, and plenty of space around you.

"You shop where you please. And you can go wherever you want to. If

you get hurt on the job, you're taken care of. If you lose your job and it's not your fault, you get some help. If you work as long as I did, you can retire.

"Today you folks working in the mill have a chance to enjoy living."

It was a good speech. Everyone said so. On the way home, Jane Ellen's father and mother told Grandfather how proud they were of him. So did Grandmother.

"I was never more surprised in my life," Grandfather said.

Grandmother laughed. Something about the sound of her laughter made him turn his head and try to look at her in the darkness.

"You knew about it all the time, Ellen," he said. "You knew they were going to give me a watch." He stopped for a minute. "You *all* knew they were going to give me a watch. I was the only one who was surprised."

They all laughed. And then he laughed too.

### DO YOU KNOW?

1. What was given to the people who had worked 15, 25, or 35 years in the mill?
2. What did the Old Timers receive?
3. Why does Grandfather think that today is better than the "good old days"?

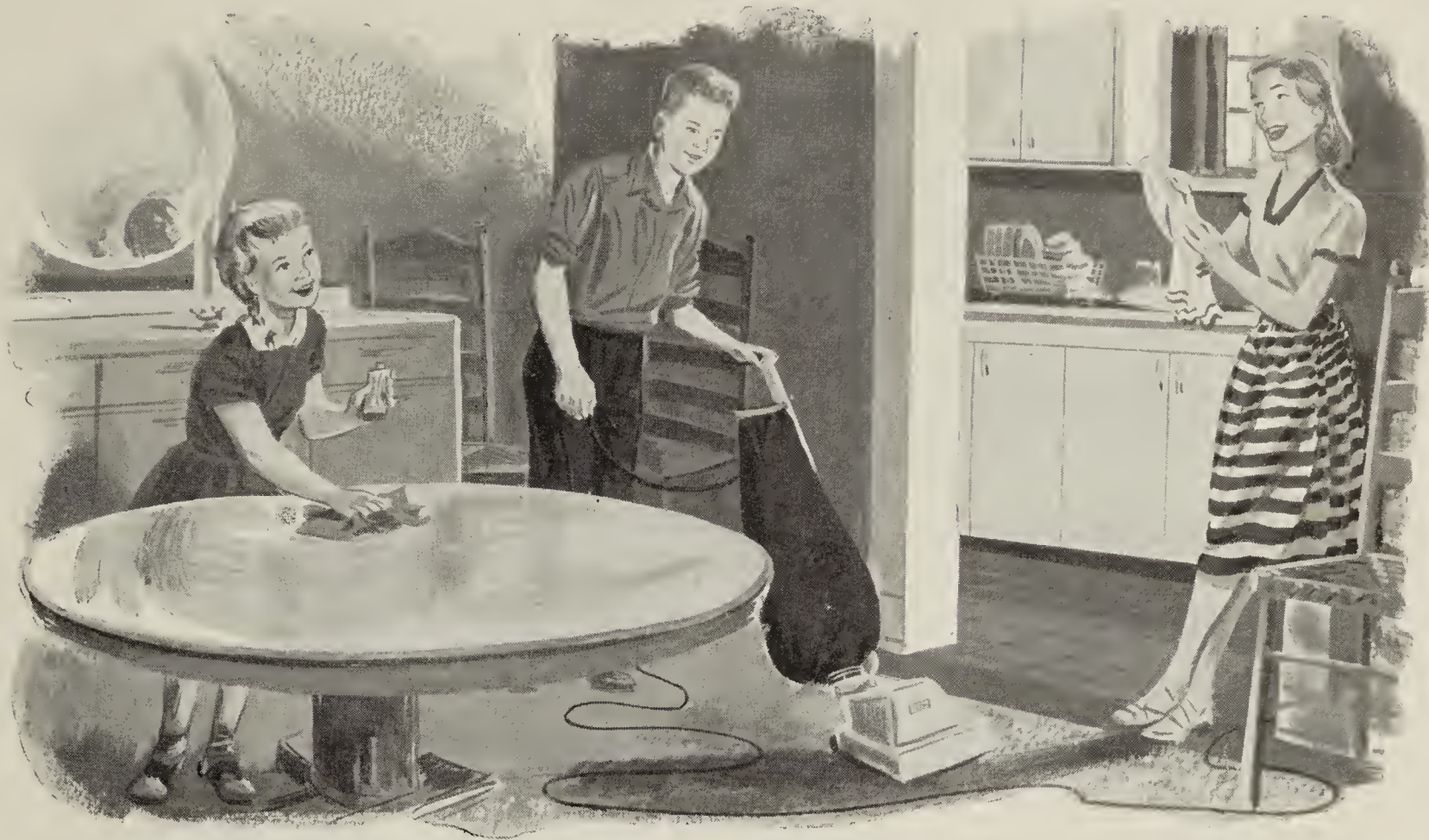
### LEARNING BY DOING

1. You might like to ask your grandparents and other older people how things have changed since they were young.
2. Can you make a play of this story?

### BEING A GOOD CITIZEN

Some people always think that things of the past or things far away are better than the things of today. What do you think? Can you make a list of things we have that people didn't have long ago?





Jane Ellen, Sally, and Lindsay don't mind doing the housework while their mother is ill. It seems like fun when they all work together.

## A Christmas Wreath

The days went by very quickly that fall. From the school bus Jane Ellen saw the fences along the highway turn bright with morning-glories in bloom. Sometimes the air felt a little frosty. All day long the sky was a cloudless blue. At night Jane Ellen heard the katydids talking back and forth.

The day after Thanksgiving was cold and rainy. It was a bad day for the Andrews family. That morning Mrs. Andrews wasn't able to get up for breakfast. Dr. Thompson came out from Millsboro as soon as they telephoned him. He gave them bad news.

"Bed is the place for you," he said to Mrs. Andrews. "And I mean bed for at least a month. Then we'll see how you are."

So Mrs. Andrews stayed in bed, and worried about Christmas. She always started getting ready for Christmas as soon as Thanksgiving was over. "If I could just be up and around until after Christmas," she said. "If we could only have Christmas as usual."

"We'll have Christmas as usual, if that's all you're worrying about." Mr. Andrews patted his wife on the shoulder. "Just leave everything to us." The children all nodded.

### Busy Days for Everyone

It had sounded easy, when Mr. Andrews had said they'd have everything as usual. But what a busy time they had, especially while Sally and Lindsay and Jane Ellen were still going to school.



First came the job of running the house and feeding the family day after day. It was Sally, of course, who took this over.

"Isn't it lucky I've been taking courses in home economics?" she said.

They all helped. Jane Ellen made the beds and set the table. Lindsay cleaned the rugs while Jane Ellen dusted.

"I know this isn't man's work," Lindsay told them, "but I'm a Boy Scout. So——. Give me that vacuum cleaner."

They took turns washing the dishes and helping Sally in the kitchen. Once they even waxed and polished the floors.

"Shall I come in and look after things?" Grandmother Lindsay wanted to know when Mr. Andrews telephoned and told her what had happened.

"No, indeed," he answered. "You have plenty to do out there. We'll let you know if we need you. But right now we're getting along fine."

Every day one of the neighbors dropped in with something for the Andrews family. Mrs. Stansbury, down

the road, fixed them a chicken stew and then a meat loaf. Mrs. Little, their old neighbor in town, brought out two pecan pies. Mrs. Weaver, next door, came over almost every day with something—layer cake or hot rolls or potato salad or a platter of sliced ham.

### Getting Ready for Christmas

Sally did the Christmas shopping her mother had had to leave unfinished. Then there were fruitcakes to be made. White fruitcakes. That was the kind they all liked best. One evening they gathered in the kitchen, and Sally and Jane Ellen cut up the candied pineapple and cherries and citron while Lindsay picked out the nuts. Next morning Sally grated the coconut. By night, the house was full of the warm fragrance of the finished cakes.

Sally ordered a turkey and made cranberry jelly. There were plenty of sweet potatoes stored away. Jars of watermelon-rind pickles and pickled peaches stood ready on the pantry shelf. They had peas from the garden in the freezer. It would really be Christmas as usual.

Now there were only five more days until Christmas. But Jane Ellen wasn't happy or excited. At first she wondered why. And then she knew. She wished she had a surprise for her mother's Christmas. Everyone in the family had seen what she was going to give her mother. Even her mother knew. They'd all watched her weaving the gay pot-holders on a small square frame.

Jane Ellen made her pot-holders on a small, square frame. She wove the loops of yarn over and under one another, just as weaving is done on big looms.





Jane Ellen made her wreath out in the garage, so that no one would know what she was doing. She wanted the wreath to be a surprise for her mother.

"Not much like the weaving you saw at the mill, is it, honey?" Mr. Andrews had said one night. "But it's weaving, just the same." Jane Ellen wished she could think of something else. Something special.

Next day she rode out to the Lindsays with her father and brother. They were taking the Christmas presents out to Grandfather and Grandmother. "In case you get snowed in," Mr. Andrews said.

"Now when have we ever had a snow like that on Christmas?" Grandfather asked. "I don't remember one, ever."

There certainly wouldn't be any snow if the weather stayed the way it was. The day was warm and sunny. Lindsay and Jane Ellen left the grownups talking. They went out to cut a Christmas tree in the woods back of the house. After they had found one they liked, Lindsay cut it and took it to the car. Jane Ellen walked up a hill where she and her mother had gathered some Christmas greens last year.

The slope was covered with pines and dark green cedars. The pine straw on the ground was fragrant in the warmth of the sun. All at once, Jane Ellen knew what she could do to surprise her mother.

When they were loading the car for the trip home, they had Christmas presents to take back for the whole family. Grandmother had baked a chicken for their supper that night and had made them a layer cake. Lindsay tied the tree on top, and then Jane Ellen came up with her arms full of cedar branches.



"What are you going to do with that stuff, honey?" her father asked. But he put it in back without waiting for an answer.

### Making the Wreath

Next day Jane Ellen hunted around in the garage until she found what she was looking for. It was a wire coat hanger which her mother had bent into a circle and padded with dark green paper. Jane Ellen had seen her using it last year when she made the Christmas wreath for their front door.

Jane Ellen clipped the cedar into sprays no longer than her hand. Then she held the sprays against the wire form, and wound the stems firmly with green string. This held the sprays in place. The needles of the cedar pricked her fingers, and the gum from the tree made them sticky.

When the form was well covered with cedar, she hung the wreath on a nail and looked at it carefully. It wasn't quite





Father, Sally, and Lindsay are all as surprised as Mother is, when Jane Ellen brings in the wreath.

even, so she trimmed a little off one side. Then she gathered a few of the prickly brown balls from under the sweet gum tree and some small pine cones over by the woods. She fastened the balls and cones against the cedar and added a bow of red ribbon. The wreath was finished. Wouldn't Mother be surprised!

She hung it inside the garage and covered it carefully with brown paper. Then she realized that it was almost Christmas, and she was feeling excited.

### Merry Christmas!

Christmas morning was gay. Grandmother and Grandfather got there early. Dr. Thompson came in the first thing, and said that Mrs. Andrews could lie on

the couch in the living room while they unwrapped their presents.

The tree, which they had trimmed together the night before, was the prettiest they'd ever had. They all said so. The presents were just what everyone wanted. They all said that, too.

"The pot-holders are lovely," Jane Ellen's mother said. Jane Ellen smiled and kissed her.

When the presents had all been opened, Jane Ellen got up and went to the door. "There's one thing more," she told them. "Close your eyes," she said to her mother, and then left the room.

She brought in the wreath and stood holding it by the couch. "Now you may look," she said.





"It's the most beautiful wreath I've ever seen," says Mother. And Jane Ellen made it all by herself.

Her mother looked, and for a moment she didn't say a word. Jane Ellen began to feel a little worried. Wasn't it all right, after all, she wondered. Then her mother smiled, and wiped both eyes quickly with her handkerchief.

"I couldn't believe my eyes," she said. "It's beautiful, darling. Beautiful. The most beautiful wreath I've ever seen. Did you make it yourself?"

Jane Ellen nodded.

Her mother smiled again. "This is all we needed for a perfect Christmas."

#### DO YOU KNOW?

1. What do you think of the way the family co-operated while Mrs. Andrews was ill?
2. How do you think that courses in home economies would help Sally at home?

3. What did the neighbors do to help?
4. What did the Andrews family have for their Christmas dinner?
5. How did Jane Ellen make the wreath?
6. Can you decide why Mrs. Andrews liked the wreath so well?

#### LEARNING BY DOING

1. Look through all of this story about Jane Ellen and make a list of the most important things you have learned from it.
2. You might like to try weaving a pot-holder like the ones Jane Ellen made.
3. At the right time, try making a Christmas wreath or a May Day wreath on a wire coat hanger.

#### BEING A GOOD CITIZEN

Why do you think Mrs. Andrews called their Christmas a "perfect Christmas"? How do you feel after you have made others happy? Can you think of things to do for other people?





Late in the afternoon, crowds of people come to the Bombay water front, to enjoy the cool breeze blowing in from the harbor. The temperature of Bombay is warm all through the year.

## Living in a Manufacturing City in India

Have you ever heard about a country called India? Turn to the world map in your Atlas and find it. Check to see whether the following statements are true.

1. India is shaped like an arrowhead, with the tip pointing south into the Indian Ocean.
2. A high mountain wall runs along the northern edge of the country.
3. India is a part of Asia.
4. India is north of the equator.
5. India is closer to the equator than the United States is.

### Let's Look at Bombay

Now find Bombay, a city in India, on your map. It is located on the west coast of India.

Bombay is much warmer than the community where Jane Ellen lives. The temperature in Bombay all the year round is like North Carolina's summer temperature. Does the world map in the Atlas help you understand why this should be so?

Bombay is a seaport. Many ships come to Bombay to load and unload goods in the harbor.

### Cotton Is Important

One of the things you can see being loaded on the ships is cotton. Bales and bales of cotton are piled high on the piers. India's warm climate is good for raising this crop.

To see the fields of cotton growing, you must travel eastward from Bombay.



After about an hour's bus ride, you come to a wall of mountains. You can go through a *pass* in the mountains to a plateau on the other side. It is on this plateau that most of India's cotton is raised.

### Cotton Mills in Bombay

Is all the cotton that goes to Bombay sent away on ships? No, much of it is used in Bombay. There are about 100 mills in Bombay that make cotton thread and cloth. So much cotton is spun and woven in the mills of Bombay that it is often called the "Cotton Manufacturing City of India."

Bombay is not the only cotton manufacturing city in India, but it is the most important one. Here we find some of the world's busiest cotton mills. Other products are also manufactured in Bombay, but cotton thread and cloth are the main ones.

There are several reasons why Bombay became a leader in cotton manufacturing:

*Many workers.* Bombay is a large city. There are many workers to operate the machines in the cotton mills.

*Transportation.* Bombay is close to the plateau where cotton is raised. The two passes in the mountain wall let trucks and trains bring the cotton to Bombay quickly and cheaply. And the cotton cloth can be shipped out of Bombay by boat as well as by train and truck.

*Power.* The swift mountain streams near Bombay can be used to make electricity. This furnishes the power to run the city's mills.

*Climate.* The air is damp in Bombay. In damp air, cotton threads do not break so easily during spinning and weaving.



This map provides you with a good look at Asia. In which part of Asia is India? Does India touch the equator? Which ocean is south of India? Is Asia a large or a small continent?

Most of India has a warm climate. The millions of people who live there wear cotton clothing all through the year. So there is a good market for lots of cheap cotton cloth.

### Life in Bombay

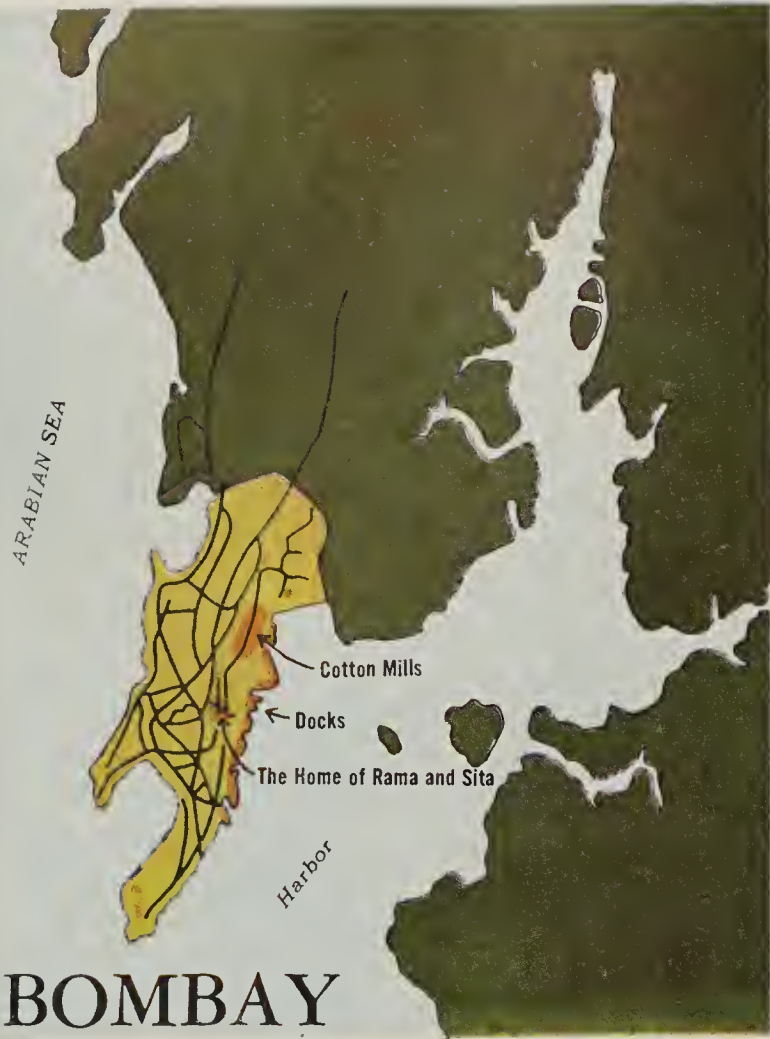
Would you like to live in Bombay? You would have to get used to ways that are old as well as ways that are new. India is a very old country, and some things are still done in the same way they have been done for hundreds of years.

In India, cows are treated as sacred animals. They are allowed to wander where they please.

Ewing Gallorey







This map shows you that Bombay is almost surrounded by water. The harbor is large and deep. Find the place where ships are loaded and unloaded. In which direction from the cotton mills do Rama and Sita live?

ing heavy loads on their heads or backs.

The Bombay mills have machines to make cloth as swiftly as it is made in North Carolina; but many women in Bombay still spin thread and weave cloth by hand.

In Bombay you can see buses and trains, but you can also see oxen pulling carts slowly down the street.

Bombay has some beautiful buildings and wide streets, but it also has narrow streets and the poorest of homes.

In this city you can see many different kinds of people—merchants and beggars, rich and poor, healthy and sick. No matter how different they are, most of them have one thing in common: they are wearing cotton clothing.

The piers at the water front have machinery for loading and unloading ships; but one can also see many workers carry-

What new ways do you notice in this Bombay street scene? What old ways?

*Ewing Galloway*





Some of the men wear white trousers, long black coats, and high black caps. Other men wear white coats buttoned up to the neck. The women wear loose dresses made by wrapping a wide strip of cloth around their bodies. The girls are dressed in full skirts and blouses; the boys in shorts and shirts.

Much of the cotton clothing worn in India is white. This is also true of other lands that are hot.

### Meet Rama and Sita

Rama and Sita are brother and sister. Their father works in one of Bombay's large cotton mills. Their mother takes care of the family and a modern three-room apartment.

They did not always have a home like this. They used to live in a one-room house that had a door but no windows.

Many of the workers in the cotton mills still live in tiny houses or in small apartments in large buildings. Most of the parents who work in the mills can provide only one room for their families.

The father of Rama and Sita can rent a nicer apartment than most of the workers because he is a supervisor. He worked with spinning and weaving machines a number of years before he got his new job. One of his main duties is to make the mill safe for the workers. It is easy to get hurt where there are many machines.

Rama and Sita have visited the cotton mill several times. They like to see the long rows of machines at work. If Jane Ellen should visit this mill with them, she would feel at home. The big machines look much the same as the ones in Mills-



Find Bombay on this map of India. On which side of India is Bombay? Are there mountains near the city? Is cotton raised right next to Bombay? How can the cotton be brought to the city? Find the mountains that separate India from the rest of Asia.

boro. They do the spinning and weaving automatically, with only a few workers to tend them.

Sometimes a worker has to mend a broken thread. Father explains to Rama and Sita that this happens rather often. The cotton raised in India has short fibers, usually not more than an inch long. So threads break easily and must be mended. Indian cotton can be used only for making a cheap grade of cloth. To weave better cloth, the Bombay mills must get long-fiber cotton grown in other countries.

Rama has decided that someday he is going to be a supervisor in a cotton mill.





These are some of the new apartment houses that have been built for mill workers in Bombay. Notice the shades at the windows to keep out the hot sun.

ful designs in them. She is teaching Sita to make all these things, too.

No matter how much cotton cloth is made in the big cotton mills, there is still not enough for the millions of people in India. They make a great deal of cotton cloth on hand looms and they also buy cotton cloth from other countries.

But he will have to learn about all the machines before he can become a supervisor.

Sita wants to have a home and family, like her mother. She knows that she may have to work in the mill, too, like many other Indian women. But she would like to go to school longer than most girls and someday do something to improve the health of the people living in India.

When Sita is not in school, she helps her mother weave on a hand loom. Sita's mother knows how to weave rugs, blankets, and cloth for garments with beauti-

### Come to Dinner

Let us imagine that the mother of Rama and Sita invites us to dinner. We go into the living room and sit in a circle on low stools. Soon Sita and her mother come from the kitchen carrying a large brass tray. They place it on the floor in front of us.

The center of the tray is piled high with rice. Around the rice are different kinds of *curry*, which is like our stew. There is curry made of lamb meat; curry made of fish; and curry made of vegetables. Many spices have been used to flavor the food.

Alongside the rice and curry dishes are crisp baked pancakes made of wheat flour. We use pieces of pancake to fill our bowls with rice and curry. Then we eat with our fingers and bits of pancake. For dessert we have tea and sweets.

### What About School?

Not all the children in India can go to school. There are not enough schools.

This teacher in a village school is showing the children a large-scale model of a mosquito. Mosquitoes spread disease, so the children can make their village more healthful if they know how to fight them.







This map shows where the main manufacturing regions of the world are located. Find Bombay and Millsboro. Which continents have the largest manufacturing regions?

But many new ones are now being built.

Rama and Sita go to a new school. It is a large room divided by bamboo screens. Each part is for a class. The little children sit on the floor. The older ones use desks and benches. When the weather is nice, some of the classes are held outdoors.

The teacher helps the children learn to read, write, and solve arithmetic problems. They also learn something about India and about ways to keep healthy.

### Manufacturing Communities Near and Far

As we continue our social studies, we shall explore manufacturing communities in many other countries. We shall find them wherever there is power to run factories, money to build them, people to work in them, and good transportation to bring in raw materials and carry away the manufactured products.

### DO YOU KNOW?

1. What is Bombay's temperature like?
2. Where are India's cotton fields?
3. Why are there so many cotton mills in Bombay?
4. What old ways may be seen in Bombay? What new ways?
5. What is the clothing of the people like?
6. What kinds of homes do most of the mill workers in Bombay have?
7. Why is cloth made of Indian cotton usually of poor quality?
8. Why do many women in India still make cloth by hand?
9. What do Rama and Sita have for dinner?
10. Why don't all the children of India go to school? Is Rama's and Sita's school like yours?

### LEARNING BY DOING

Would you rather live in a manufacturing community in North Carolina or in India? Write your reasons for your choice.

### BEING A GOOD CITIZEN

Do you know why Sita wants to do something to improve the health of the people of India? What can you do to prevent colds and other illnesses from spreading?



## A New Look at Manufacturing Communities

### THINGS TO TALK ABOUT

1. Would you like to live in a manufacturing community? Why or why not?
2. How many kinds of cotton cloth can you name? How are they used?
3. How are the mills in Bombay like those in Millsboro?
4. What things are necessary if factories are to be built in any part of the world?
5. Look at the map on page 233. Which country has the larger manufacturing region, the United States or India?

### CHECKING OUR SKILLS

Every day we hear people talking. We hear sounds made by airplanes, trains, and animals. What sounds should we recognize in order to be safe?

Are you a good listener? We can learn many interesting and useful things by being good listeners.

In school, we should listen carefully to what the teacher and the other children say. Some of the reasons for this are:

1. To hear the questions that are asked.
2. To hear the answers to questions.
3. To hear directions for doing things.
4. To learn about interesting things the others have done or read.
5. To hear what others are saying so that we can take part in the discussion.

We need to know *exactly* what others say. If we hear only part of the words that are spoken, we may make mistakes.

If we watch the speaker, we will understand him better. His face may show how he feels about things. Even the way he uses his hands may tell us something.

We can all become better listeners if we try. Here are some rules that have helped other boys and girls.

1. Sit in a comfortable position.
2. See that books, pencils, and other things are put away.
3. Watch the speaker.
4. Think about what he is saying.

5. Wait until the speaker has finished if you have corrections to make.

6. Ask good questions of the speaker after he has finished talking.

### BEING A GOOD CITIZEN

Grandfather Lindsay worked hard in the mill before he knew that the company would invite him to dinner and give him a watch.

Rama's father worked hard in the Bombay mill and learned all he could before he became a supervisor.

People who learn all they can and do their best usually get along well. How can you prepare yourself to do good work and to get along well?

### BOOKS TO ENJOY

Batchelor, Julie F., *A Cap for Mul Chand*. He earns a cap to wear to Bombay.

Burgwyn, M. H., *River Treasure*. A boy and his dog on a cotton farm in India.

Credle, Ellis, *Here Comes the Showboat!* Two North Carolina children win prizes for making up words and music for a song.

Goudey, Alice E., *The Good Rain*. Effects of rain in country and city.

Leeming, Joseph, *Fun with Fabrics*. Interesting and useful things to make.

Lenski, Lois, *Blue Ridge Billy*. Good readers will enjoy this story of North Carolina.

Lenski, Lois, *Cotton in My Sack*. Story of an Arkansas family on a cotton farm.

Louden, Claire and George, *Rain in the Winds*. A village in India depends on rain.

Mason, Miriam E., *Caroline and Her Kettle Named Maud*. Story of a pioneer girl.

Petersham, Maud and Miska, *The Story Book of Things We Wear*. Stories of wool, cotton, silk, and rayon.

Raman, T. A., *Let's Read about India*. Good pictures, chapters about Bombay, education, foods, and other things. Not easy.

Rogers, Matilda, *The First Book of Cotton*. The whole story of cotton is told.

Yale, Jonathan, *The Magic of Cloth*. The story of how cloth is made.

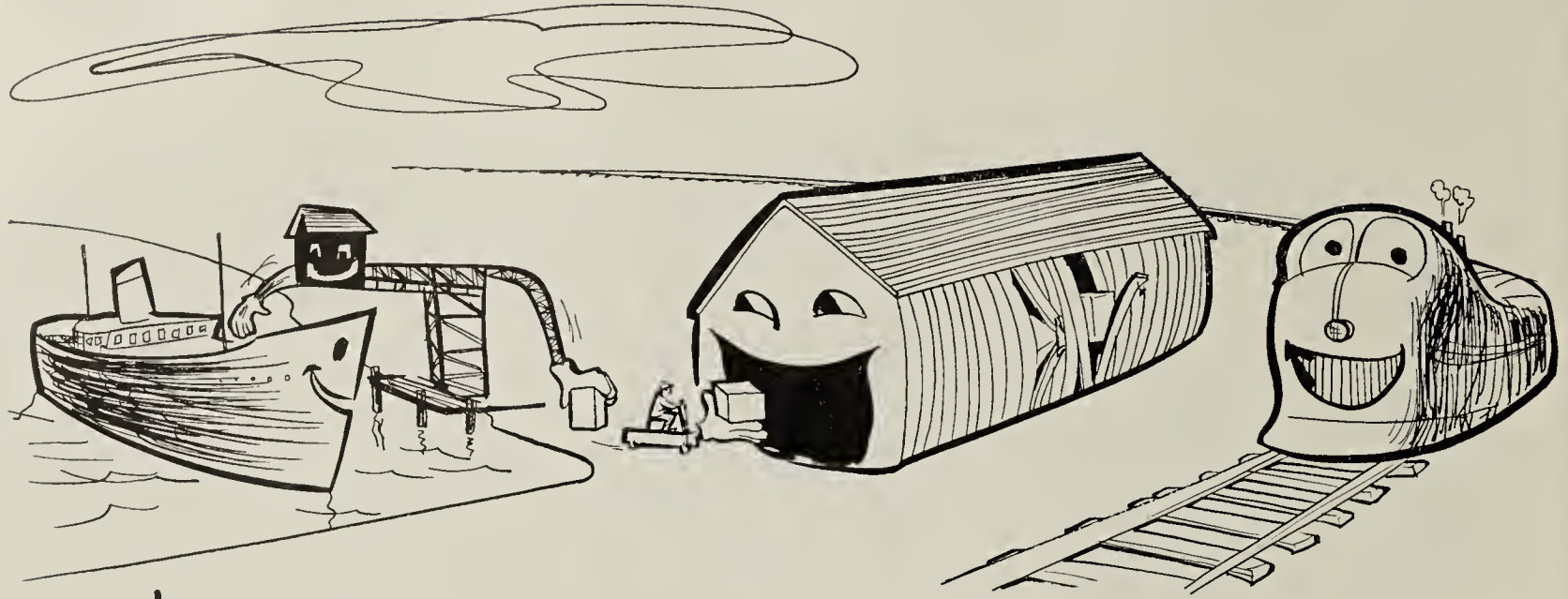




# Pierre and The Tugboat

UNIT 6





## Living in a Trading Community

Do you remember the story of Pimwe? Traders came to his village and exchanged knives and cloth for rubber and nuts. In another story we learned how Joe Manygoats went to a trading post and exchanged some wool for a new knife.

Did you know that there are great cities where trading is important work for many people? Some of the people in trading cities buy and sell goods. Some work in warehouses where goods are stored. Some work on ships.

Find the city of New Orleans in your Atlas. It is a trading city. One of the workers we will read about is Pierre's father. He is a tugboat captain.

Across the Pacific Ocean in Japan is the great trading city of Yokohama. Find it in your Atlas. Fujio lives in Yokohama. His father is a tugboat captain also. You will enjoy getting acquainted with Pierre and Fujio. After you have read these stories, you will be able to answer the question—Would I like to live in a trading community?

### I WONDER

I wonder how we get the bananas I like to eat.

I wonder if I would enjoy working on a tugboat when I grow up.

I wonder if the people of different countries are helped when they trade with each other.

I wonder why great trading cities are located on rivers or bays that lead to the oceans.

### WORDS WE NEED TO KNOW

*barge*

*dispatcher*

*hurricane*

*sugar refinery*

*Carnival*

*ferry*

*levee*

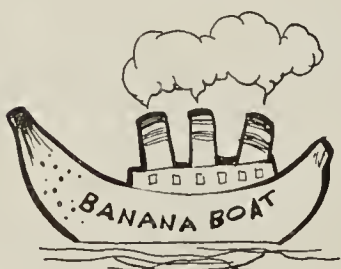
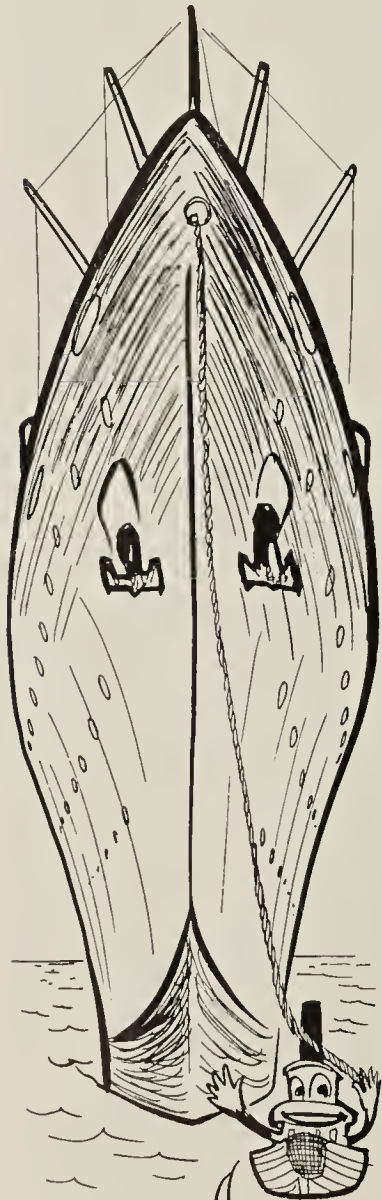
*tugboat*

*cranes*

*freighter*

*Mardi Gras*

*wheelhouse*







Ferryboats carry passengers and automobiles across the Mississippi River. Do they look like other ships that you know? How are they different?

## At the Mouth of the Mississippi

One November afternoon when Pierre Becker came home from school, his mother called to him. "Come ride across the river with me. I'm going to bring your father home from work."

"Oh, boy!" said Pierre.

He was always glad to ride the *ferry* across the Mississippi River. Every time there was something exciting to see, as great ships entered and left the port of New Orleans.

Ships from all over the world come to New Orleans to deliver cargo from many lands. Then they are refilled with cargo for shipment to other countries.

Pierre's father had an important job in the port. He was the captain of a *tugboat* which helped the ships enter and leave the harbor.

### A Ride on the Ferry

When Mrs. Becker drove the car onto the ferry, a man showed her where to

park on the lower deck. Many other cars and trucks were already there. People without cars crowded the upper deck. They were returning from their jobs in New Orleans to their homes on the other side of the river.

With a loud jangling of bells, the ferry moved out into the river. Pierre rolled the car window down, so that he could see better. He liked to look at the river. It seemed different every time.

In spring it was high and muddy, and very, very wide. In summer it was low. Sometimes in winter Pierre could not see very far, because it was foggy on the river. On foggy days the ferry blew its foghorn every minute. Pierre liked to hear the booming sound fade off into the mist.

Today, the air was clear and Pierre could see well. "Look, Mother," he said, pointing to a ship coming around the bend. "There's a *freighter*. I won-



der where it came from. Can you tell?"

"Your father would know," said Mrs. Becker with a smile, "but I can't tell. So many ships come to New Orleans. Ships from everywhere."

"Dad knows all the smokestack markings and the flags," said Pierre. "That's how he tells where they're from."

Just then the ferry's whistle gave two long blasts. Pierre ducked his head at the loud noise. The freighter answered with two blasts, and Pierre saw two white puffs of steam the whistle made.

"Look now, Mother," he said. "We're passing right in front of the freighter. It cut its speed to let us pass."

Mrs. Becker glanced at the ship, then back at Pierre. A faint smile of pleasure tugged at the corners of her mouth. Of her two sons, Pierre was the one who

showed the most interest in the river and the port. Unless she missed her guess, Pierre would follow in his father's footsteps. Pierre's father and grandfather had both become river captains. Perhaps in time he would become a captain, too.

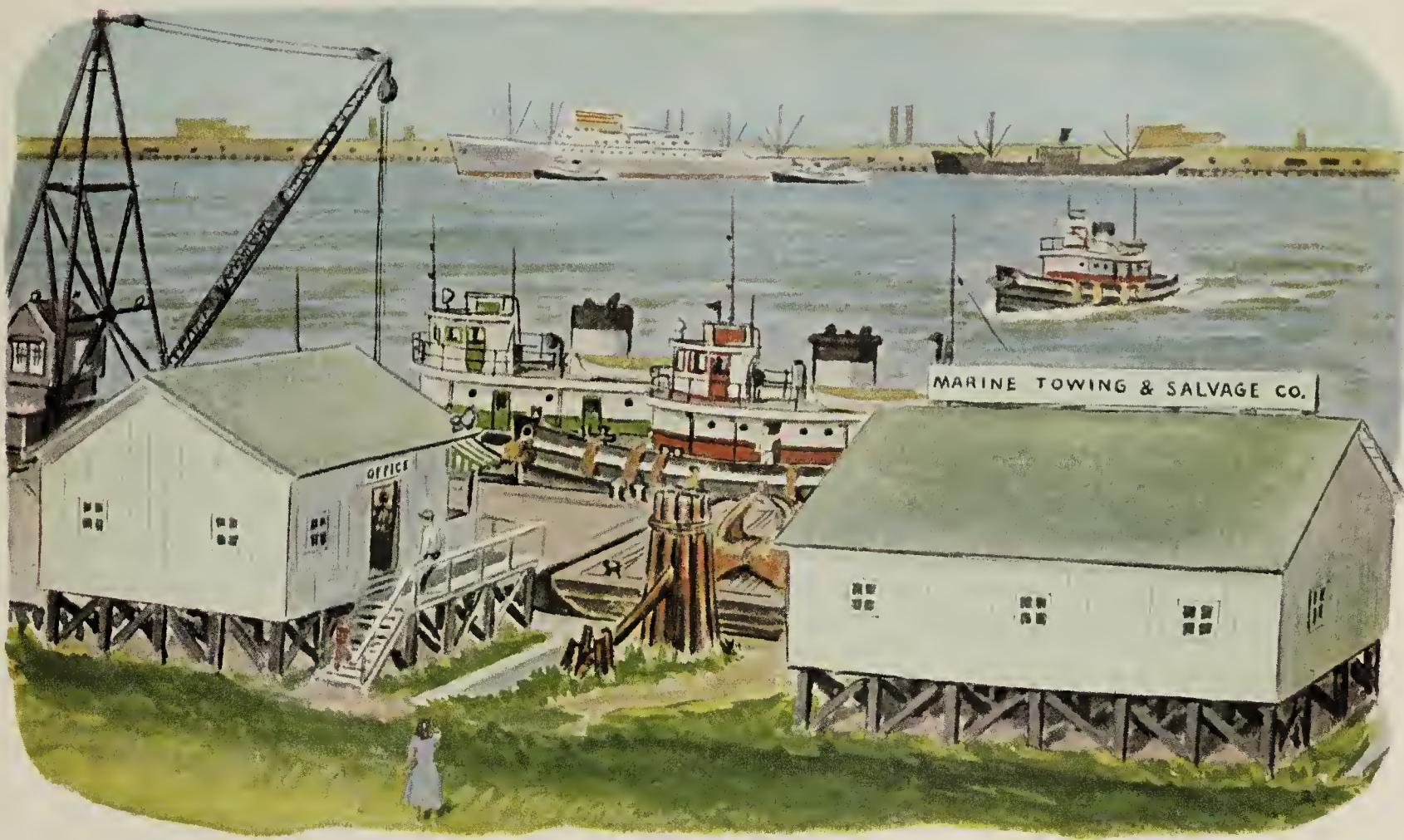
Pierre continued to watch the river traffic until the ferry docked on the other side. Then the cars began to drive off. Mrs. Becker followed a road which ran along the *levee*. A levee is a wall of earth built along the bank of the river. It slopes upward like a hill and keeps the river from flowing over its banks during high water.

When they came to a place where some cars were parked, Mrs. Becker stopped. They got out of the automobile and walked up the grass-covered levee.

Two tugboats are helping this big freighter enter the harbor at New Orleans. They will push the ship alongside one of the many wharves that line the bank of the Mississippi River. What is there in this picture to make you think that the business district of New Orleans is close to the water front?







The tugboat landing is across the Mississippi River from New Orleans. The dispatcher in the office uses a radio telephone to talk to the tug captains and tell them where the tugs are needed. Can you guess why the buildings are perched on stilts?

### The Tugboat Landing

They walked toward the tugboat landing.

"I don't see Dad's tug," said Pierre.

"We'll ask Mr. Herbert, the *dispatcher*," said Mrs. Becker.

Mr. Herbert was inside the small office. The dispatcher stays ashore and sends the tugs out to do different jobs. He has a radio telephone and can talk to the different tugboats no matter where they are.

"Will Captain Becker be along soon?" asked Mrs. Becker.

"Any minute now, Mrs. Becker," said Mr. Herbert. "He phoned me a while ago when he finished with his last ship."

Pierre and his mother stood near the window and looked down at the dock

where several other tugboats were already tied up. Suddenly Pierre pointed.

"There's the *Orleans*. Dad's coming!"

The trim tug eased into a docking place alongside another tug. Pierre saw the deck hands make the ropes fast. His father tooted the whistle when he spied Pierre and his mother standing by the office window.

They went outside to meet him. Captain Becker waved good-bye to the deck hands and walked up the small pier toward the office. The sun was setting, and the air was cooler. A nippy breeze had sprung up. Winter wasn't far off.

"How are you, son?" asked Captain Becker, as Pierre walked to meet him.

Captain Becker was lean and strong, with thick gray hair. Years of wind and



sun on the river had tanned his face like leather. He was a kind and serious man. He didn't smile often; but whenever something amused him, his blue eyes would twinkle and the corners of his mouth would crinkle. His hands were big and powerful. They had been strengthened by his first job as a brass polisher on a riverboat.

Pierre grinned. "Everything's fine, Dad," he said. He glanced at the dark-blue sea captain's hat his father wore. It had the insignia of a full captain embroidered in gold on it. Sometimes at home, when Captain Becker was taking a nap, Pierre would wear his father's hat. With it on, he liked to look at himself in the hall mirror and imagine that someday he would have his own captain's hat.

The family waved good-bye to Mr. Herbert and hurried over the levee to the car. As they went back across the river on the ferry, Captain Becker said, "How was school today, son?"

"I was bank teller, Dad. It was my turn today. I put all the money envelopes in a sack and turned it over to the man in uniform."

Pierre liked bank days. One of the big downtown banks sent a special car and driver to school one day each week. It picked up money which the children had saved. Then the money was deposited in the big bank.

Pierre had his own bankbook and he was saving money like his classmates. Some weeks he had only a few pennies, sometimes more when he earned extra money doing odd jobs. His bankbook showed how savings quickly add up.

"Today was a busy day," said Captain Becker when Pierre finished telling about bank day. "There are many ships in port. I had four ships to help. A *tanker* from Brazil to take on oil, a freighter from Norway, a banana boat from Central America, and a passenger ship."

Pierre recognized the names of all these ships. He knew that a tanker carried great quantities of oil. A freighter carried all sorts of things—anything from machinery and automobiles to grain and cotton. A banana boat carried only bananas. Banana boats are refrigerated to keep the bananas cool. It is a long way from the banana plantations of Central America to New Orleans, and bananas spoil quickly.

### DO YOU KNOW?

1. On what kind of boat did Pierre and his mother cross the river?
2. What did Pierre see while crossing the river?
3. What kind of work does Pierre's father do? How do he and his tugboat help big ships?
4. What is the purpose of a levee?
5. What is the duty of the dispatcher?
6. What kind of ships had Captain Becker helped that day? How did he know where the ships had come from?
7. Is it a good thing to have ships from other countries come here? Why?

### LEARNING BY DOING

Find New Orleans on your map of the United States. With your finger trace the Mississippi River north from New Orleans to where it begins in Minnesota.

### BEING A GOOD CITIZEN

Pierre and his classmates put part of their money in the bank on Bank Day. Do you think it is a good idea to save part of what we have? What do you do with money you get?



## At Home with the Beckers

As they reached home, Pierre's father glanced at the sky. "It looks like rain," he said. "We haven't had a good shower for days. Of course, we never get much rain at this time of the year."

New Orleans has many showers in spring and summer, but fall and winter are drier.

Pierre and his mother looked up at the threatening sky as they climbed the steps leading into the house. Captain Becker drove the car into the garage. It was under the house and level with the street. In New Orleans, basements are not built below the ground. The city is located on low, flat land and the soil is very moist. Water would seep into basements.

As Pierre and his mother entered the house, they could smell something spicy. Granny Becker was cooking crab gumbo.

Gumbo is a thick soup that was popular with the early settlers of New Orleans. It is still a favorite meal of people living there. It is made from fresh crabs from Lake Pontchartrain. Other things which go into gumbo are tomatoes, onions, and fresh okra. Several seasonings are used to make it very spicy.

"M-m-m-m," sniffed Pierre. "Smells almost ready," he said. "What are we going to have with the gumbo, Granny?"

"Steamed rice and French bread," said Granny.

Soon the family sat down to feast on Granny's tasty gumbo.

"This is good gumbo," said Pierre's brother Stuart. He was nineteen years old and a student in college.



Houses in New Orleans are built high above the ground. This is because the city is located on low land where the soil is full of moisture.

Pierre's sister Marie spoke up. She was fourteen and in high school.

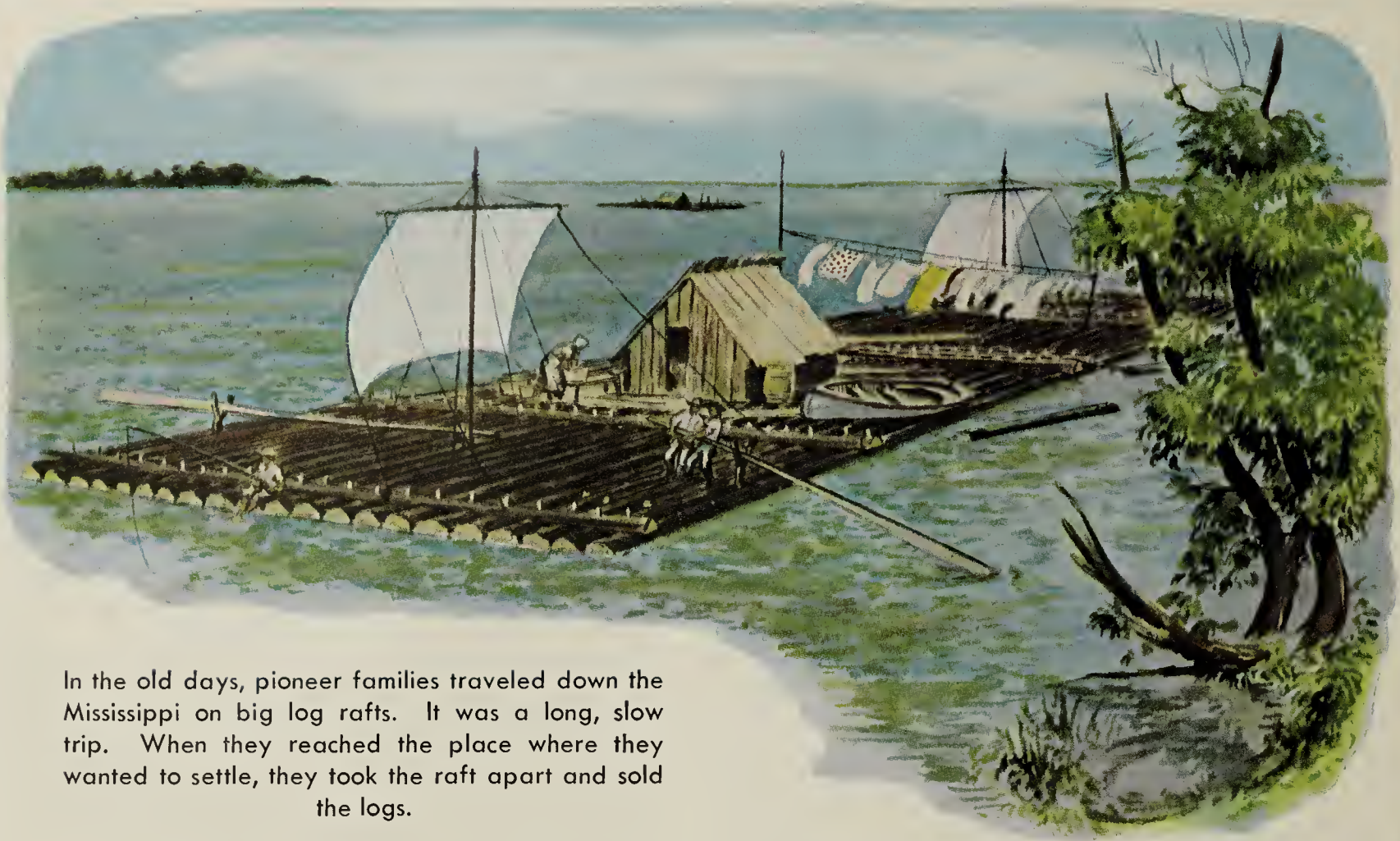
"Nobody can make gumbo as good as yours, Granny," she said. "It's so rich and thick, it's a meal all by itself."

## New Orleans Long Ago

Pierre heard the soft falling of rain as he got ready for bed that night. Soon Granny came in and stood by the rocker in his room. She wanted to make sure he had enough covers for his bed. The nights were getting colder as winter approached. Soon the family would need to light the small gas heaters in every room.

Grandmother Becker had made her home with Pierre's mother and father





In the old days, pioneer families traveled down the Mississippi on big log rafts. It was a long, slow trip. When they reached the place where they wanted to settle, they took the raft apart and sold the logs.

ever since Pierre was a baby. She often told him stories at bedtime.

"It's still early, Granny," said Pierre. "Please sit down and tell me more about old days on the river." Grandfather Becker had been captain of a tugboat that pushed strings of *barges* on the Mississippi River. Granny knew many stories about his trips up and down the river.

Granny settled down in the chair and rocked gently to and fro. Her face was wrinkled with age and her hair was silver-colored. But her eyes were bright when she talked.

"New Orleans is an old city, Pierre," she said. "It's almost 250 years old. The river is the thing which made it a great city. In the early days, the river was like a main highway leading to New Orleans. Some settlers came down the river on rafts. Others came from over the ocean on big ships with sails."

"Did all of the early settlers from over the ocean come from France?" asked Pierre.

"The first ones came from France, Pierre. My family was French. You have a French name."

"Yes, I know," said Pierre. "It is French for Peter."

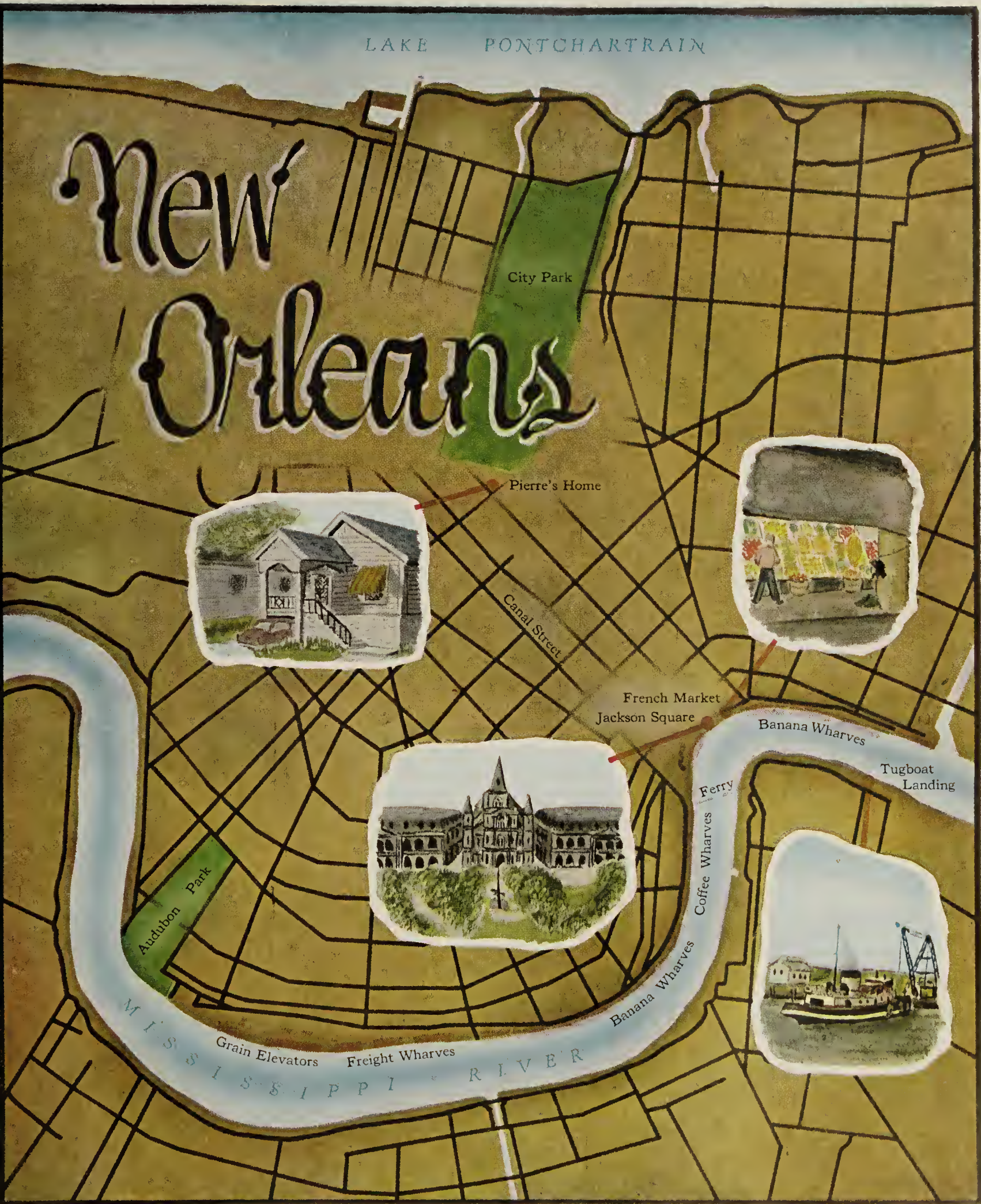
"A Frenchman named Bienville founded New Orleans," continued Granny. "Early Spanish explorers had told stories of a mighty river flowing through North America. So the King of France sent four ships to find the mouth of the river and claim it for France. Bienville was on one of those ships."

"The French later lost New Orleans to Spain for a while. Then they got it back from Spain and sold it to the United States."

"Was Grandad a captain then?" asked Pierre.



# New Orleans



New Orleans lies between a river and a lake. Which one is used by the big ships? What product is unloaded near Jackson Square? Near which park does Pierre live? Follow him on the map as he goes from his home to the tugboat landing. What parts of New Orleans would you like to visit?





The men on a flatboat could loaf while it was floating down the river, but they would all need to row hard to go up the river against the current. Steamboats with big paddle wheels could go upstream as easily as they could go downstream.

Granny shook with laughter. Then her face sobered. "I'm old, son," she said, "but not that old. Your grandfather and I weren't even born then. The United States bought this land more than 150 years ago."

Granny rocked in silence for a few moments. Her forehead was wrinkled in thought.

"When was Grandad on the river?" asked Pierre.

Granny smiled and her eyes were bright. "He was a tugboat captain at the time when barge transportation began to be important," she said. "Those were busy days. Sometimes he pushed a long string of barges all the way to St. Louis. He knew every curve and bend in the river, every sand bar and snag.

"Your grandfather loved the river, Pierre. And he loved this big port city near the river's mouth. That's why he made New Orleans our home."

Granny smiled again. "Too bad he

can't see how much our city has grown," she said.

When she left the room, Pierre drifted off to sleep thinking about the river.

### DO YOU KNOW?

1. Why aren't the houses in New Orleans built with basements below the ground?
2. How is gumbo made? Would you like it?
3. How old is New Orleans? What made it a great city?
4. Who founded the city of New Orleans? Where did the first settlers come from?
5. How did the United States get New Orleans?
6. What trips did Pierre's grandfather make while he was a tugboat captain?

### LEARNING BY DOING

Who were the first settlers in your community? Where did they come from? How old is your town? How did it get its name?

### BEING A GOOD CITIZEN

How did Stuart and Marie let their grandmother know that they enjoyed the good meal she had prepared? Do you think that she liked to hear what they said? What do you tell people who cook good meals for you?



# New Orleans Is a Busy Port

One Saturday Captain Becker offered to take Pierre aboard the *Orleans* for the day. Pierre was glad. Now he could see for himself what it was like to be captain of a tugboat. Mrs. Becker took them in the car to the tugboat landing and waved good-bye.

Pierre followed his father happily up the steps to the *wheelhouse* of the tugboat. The wheelhouse is the cabin high up in front where the captain stays. The steering wheel is located there.

Pierre examined the compass first. From it one could tell in which direction the tug was going. Then two radio-telephones caught his eye.

"Who talks on those phones, Dad?"

"Mr. Herbert on one, son," replied his father, "and the ship-to-shore telephone company on the other. Here, I'll show you."

Captain Becker pressed a button on the radio set, which was mounted behind the steering wheel. Soon Pierre heard a sputtering sound. Then his father picked up the telephone.

"*Orleans* to dispatcher," he said. "Proceeding into river. Over and out."

Suddenly the radio behind him blared out. It was Mr. Herbert's voice.

"Dispatcher to *Orleans*. Proceed. Over and out."

In the wheelhouse Captain Becker has many things to help him run his tugboat safely. In front of the steering wheel there are two compasses to tell directions. The engine-room telegraph at the right gives orders to the man in the engine room. Captain Becker is talking to the dispatcher on the radio telephone.







This stubby little tugboat is pushing a whole barge load of new automobiles, which have been brought down the river. Some of them will be sold in New Orleans, and others will be sent to countries all over the world.

Pierre guessed that “over and out” meant good-bye. He grinned with pleasure. Tugboats had slick modern equipment to help do their work.

Captain Becker glanced out over the river to see if it was clear. Then he tooted the tug’s whistle. Pierre watched the deck hands down on deck unfasten the heavy ropes which tied the tugboat to the wharf. His father walked over to the engine-room telegraph.

“The engine-room telegraph,” he explained, “lets the engineer down in the engine room know what the captain wants the vessel to do. Sometimes he signals SLOW, sometimes HALF SPEED or FULL SPEED. All ships and boats move AHEAD or ASTERN. One means forward, the other means backward.”

Captain Becker signaled SLOW AHEAD. The tug began to move. He gave the wheel several sharp turns. The tug headed out into the river. Then he signaled FULL SPEED AHEAD. The tug moved faster.

“Where are we going, Dad?”

“We’re going downriver to pick up a freighter loaded with mahogany logs from Africa. We will help it dock.”

### Boats on the River

Captain Becker stood at the wheel and carefully watched the river traffic. His hands rested lightly on the big wheel, but his sharp eyes watched every moving vessel on the river. Sometimes he reached up and pulled the whistle cord to sound a warning as he passed a ship.

Pierre stood at the window and watched the ships and barges they passed. Some bright new automobiles attracted his attention.

“Look, Dad,” he said. “Those automobiles are brand-new. A whole barge load of them! Where did they come from?”

Captain Becker looked at the barge being pushed alongside a wharf by tugs.

“They may have come from Memphis, son. Some of the automobile companies have assembly plants there. Or they may have come all the way down from Detroit by water. Many cars are brought here that way.”

“Where are they going, Dad?”

“Some will be sold in New Orleans. Others will be sent to countries all over the world,” said Captain Becker.



The *Orleans* passed a long line of ships tied up at the wharves. Captain Becker knew by their flags and smokestack markings what countries they belonged to. He told Pierre where each ship came from. Pierre saw cargo being loaded and unloaded.

"Ships carry lots of things, don't they?" he said.

"Yes, son," replied Captain Becker. "See how many different things you can recognize."

Pierre watched carefully as the *Orleans* moved along.

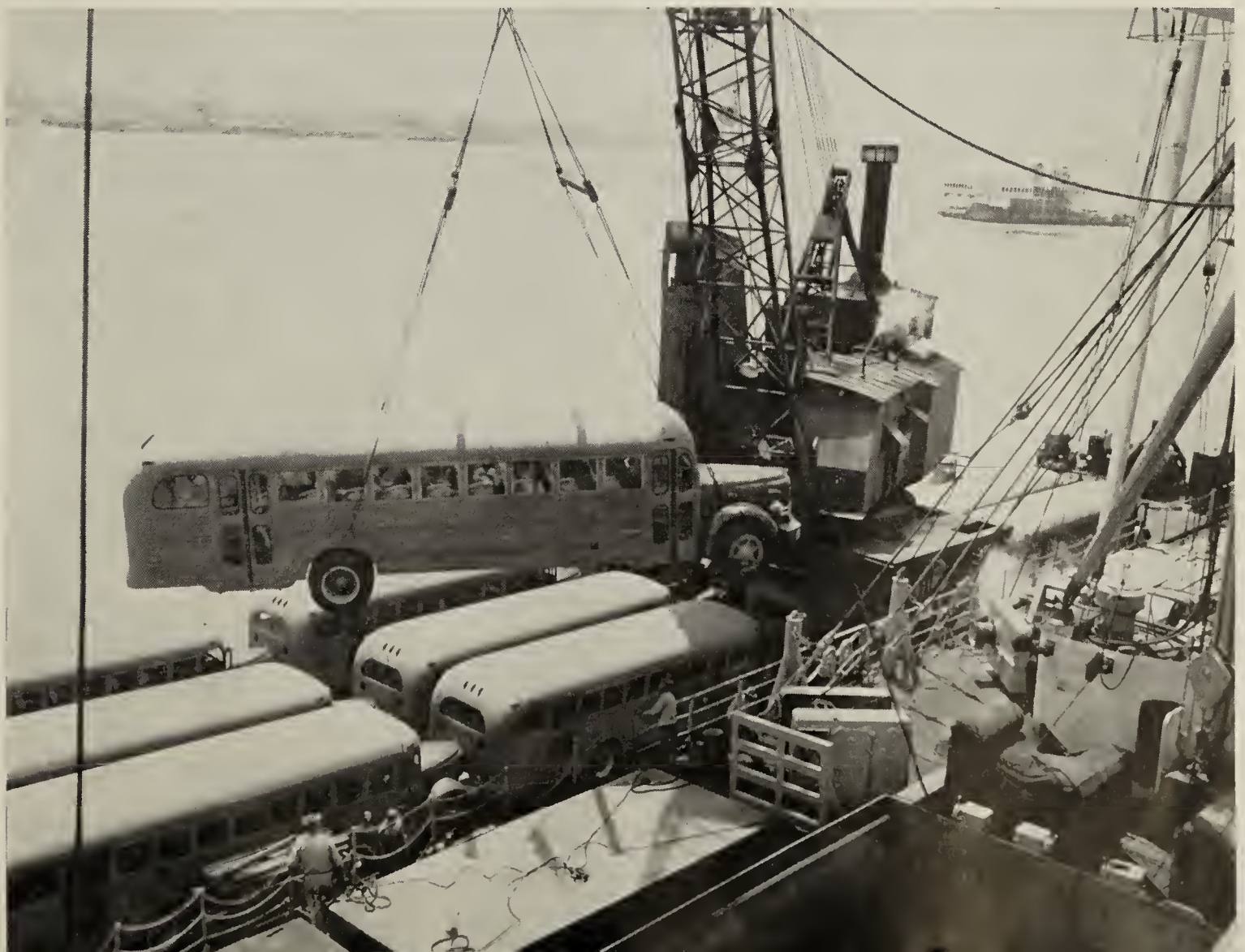
"I see tractors being loaded," he said. "Cars and trucks, too. There's something that looks like farm machinery. And look at all those bales of cotton."

Captain Becker pointed out a Dutch ship loading barrels of tar and another ship unloading raw sugar from Cuba.

At last they reached a freighter moving slowly up the river. Pierre watched from the window as his father steered the *Orleans* alongside the ship. He saw another tug already by the side of the ship. There were wire cables running from the tug to the freighter. Then the *Orleans* moved closer, and the deck hands on the tugboat passed up ropes to the men on the ship.

Captain Becker turned on his radio-telephone and talked to the captain of the other tugboat. Suddenly Pierre noticed that all three vessels were moving. The two tugs were fastened tightly

The big crane has picked a school bus up in a sling. Then it will swing it over the freighter and lower it gently into the hold. These school buses are being sent to a country in South America. Can you name other kinds of machinery that are shipped out of New Orleans?







A fueling barge is long and low. It carries great quantities of oil, and machinery for pumping the oil into the ships that need it.

to the side of the big ship. They moved upriver toward the wharves. The two tugs guided the freighter as it moved slowly. It took a long time to reach the place where the ship was to dock.

During the trip upriver Captain Becker sent Pierre below to the galley to fetch him a cup of hot coffee. Pierre had a glass of milk. He found the galley well supplied with good food from the tug company's store room.

When they reached the wharf where the freighter was to be moored, Captain Becker turned on his radio-telephone again. This time he talked to the captain of the other tug.

"Toot your whistle, tug *Lillian*, when you're ready," said Captain Becker.

When the *Lillian's* whistle tooted, Captain Becker turned his steering wheel sharply. Both tugs began to push against the side of the ship. Slowly but surely they pushed the big ship up against the side of the wharf. Then the tugs backed off. Pierre could see men fastening big ropes to hold the ship firmly in place beside the wharf.

"Where are we going now, Dad?" Pierre asked as the *Orleans* headed out into the channel.

"We'll have to find out, son," said Captain Becker.

He called the dispatcher on the radio-telephone. Mr. Herbert told him to go to the Toulouse Street wharf and pick up a *fueling barge*.

"What is a fueling barge, Dad?"

"A fueling barge is like a service station for cars, son. It pumps oil into the ships' tanks. When ships reach port, they generally need fuel, just as automobiles need gasoline on a trip."

Pierre nodded in understanding.

"Moving fueling barges," continued the captain, "is one of the principal tasks of a tugboat."

### Wheat Comes down the River

As the *Orleans* headed downriver, Pierre spotted some other barges. They were tied up at a wharf near a very large building. "Are they fueling barges, too?" he asked.

"No," said his father. "They are grain barges, loaded with corn, barley, or some other grain. Probably wheat. Those barges bring grain downriver from grain-producing states like Nebraska and Kansas."

"How long does it take them to get to New Orleans?" asked Pierre.

"The grain is moved to the river by train," said Captain Becker. "Then it is put into barges. It takes about two



The grain elevators at New Orleans are so large that several ships can be loaded at one time. The picture below shows how the loading can be done quickly and easily.



weeks for the barges to get here. They come down past St. Louis, Memphis, and other river cities before they reach New Orleans."

As the *Orleans* moved closer, Pierre asked his father what the big building contained.

"That's the grain elevator," answered Captain Becker. "Grain from the barges is stored there. Later, ocean ships will come and take it away. Then more grain will be brought down to fill the elevator again."

"Where does the grain go?" Pierre asked.

"It is shipped all over the world to make flour and bread and to feed cattle," replied his father.

Soon the *Orleans* moved in closer to shore alongside a barge. Pierre knew it was the fueling barge. He could see the big hose that carried the oil from the barge into the ships. Deck hands

fastened lines to the barge. When the *Orleans* moved away, the barge came with it.

"Where are we taking it, Dad?"

"To a Norwegian ship. She needs fuel for the trip back to Norway."

As they moved along, Pierre watched his father closely. He wanted to learn everything a tugboat captain had to do.

"How do you get a license to be a tugboat captain, Dad?" he asked suddenly.

Captain Becker smiled, and his eyes twinkled with pleasure.

"You don't start out as captain. You work your way up," he said.

Captain Becker looked out over the river. He hoped his son would become a captain someday.

"I'll never forget the day I got my first-class pilot's license. When old Captain Johnson handed it to me, he said: 'John Becker, I knew your father

Big pipes are lowered until they are directly over the hold of the ship. Then, at a signal, wheat begins to pour down in a golden stream. Think how long it would take to load the ship if men had to carry the wheat from the elevator in buckets! Machinery does the work quickly and easily.





well. He was a fine man and a fine captain. You've worked hard for this pilot's license, and I'm glad to give it to you. But always remember one thing—having a pilot's license doesn't necessarily make you a good pilot.' I guess old Captain Johnson was right."

Pierre wondered what the old captain had meant. Maybe he wouldn't know until he was a pilot himself.

### DO YOU KNOW?

1. What is the wheelhouse of a tugboat?
2. What does a compass tell?
3. How are radio telephones used?
4. What kinds of messages are sent over the engine-room telegraph?
5. How did Captain Becker help to make travel on the river safe?

6. Where did the new automobiles on the barge come from? Where were they going?

7. What did Pierre see being loaded and unloaded at the wharves?

8. How do tugboats work together?

### LEARNING BY DOING

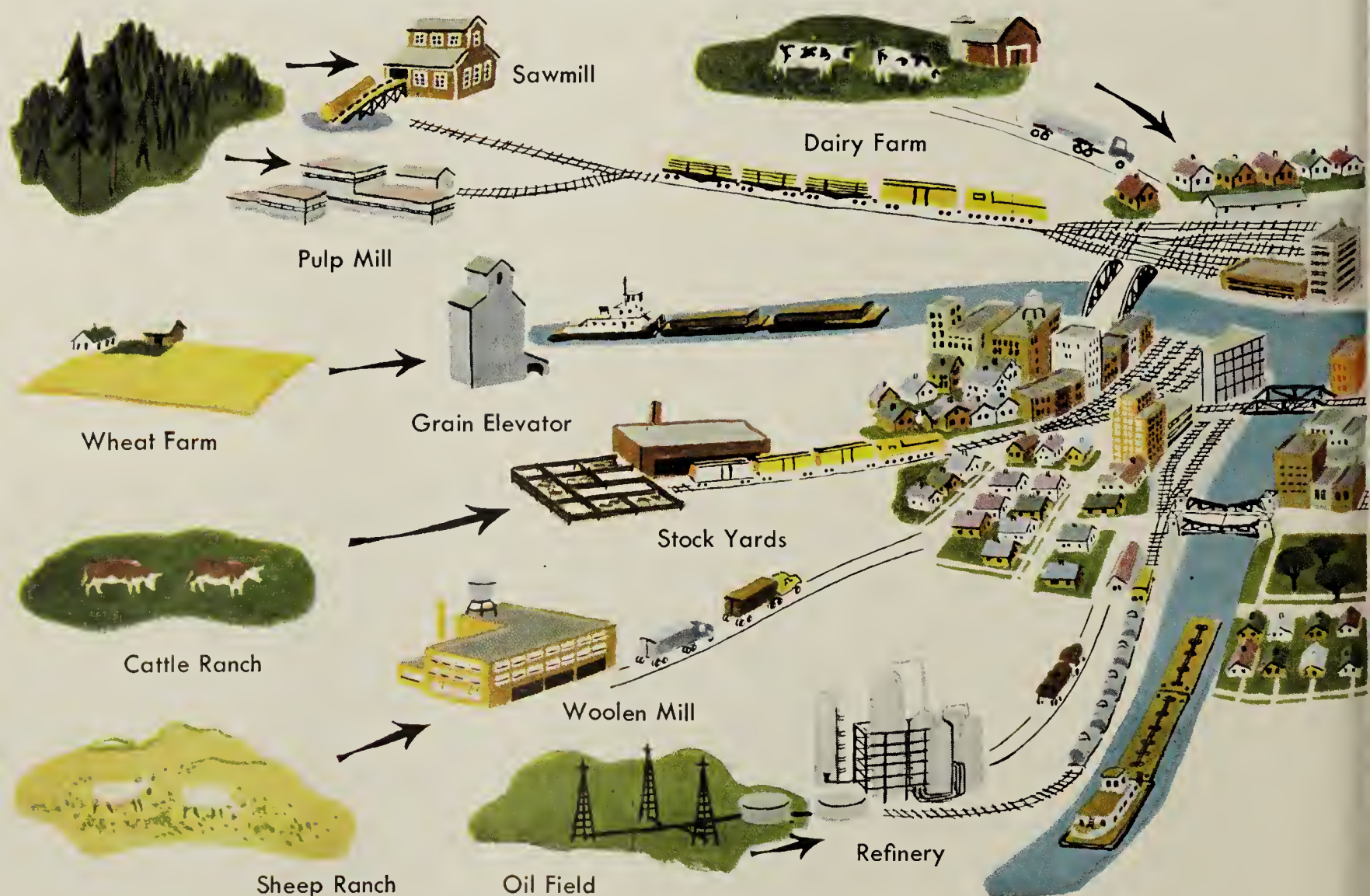
1. Make a list of the signals that a ship's captain uses, and tell what they mean.

2. Would you like to make a picture-story of the travels of wheat? Start with it leaving a Nebraska farm. Then show how it travels until it is on a large ship on its way to some other country.

### BEING A GOOD CITIZEN

What did Captain Becker mean when he said, "You don't start out as captain. You work your way up"? How can you become good in reading, arithmetic, or social studies? Can you begin with the hardest things first?

Big cities can grow up only when there is good trade and transportation. Most of the things that a large community needs for food, clothing, and shelter must be brought in from other parts of the country.





# Thanksgiving Day

"A week from today is Thanksgiving Day," said Mrs. Becker one night. "I suggest that this year we have a New Orleans dinner. Let's serve food that is produced near the city."

Everyone thought that was a good idea. They began to talk about things they might have for dinner.

"To make it a real family Thanksgiving, each of us should find something for the meal," Stuart suggested. "I'll go into the marshes near town and try to shoot a wild goose. The season for hunting geese opens this week end. I believe I can get one."

"Why don't we see wild ducks and geese in the marshes in summer?" asked Pierre.

"They go back north when the weather warms up," explained Stuart. "They come south in the winter to get away from snow and ice. Even though it gets cold here, there is hardly ever any ice. I've never seen snow except in pictures."

"Do the geese come every year?"

"Yes," said Stuart. "New Orleans is on the path they take to come south. Their path is called the Mississippi flyway because it follows the river down through the country. Many other birds

What different kinds of transportation can you find in the picture on these two pages? How many places does the community's food come from? What is being brought in to make new buildings in this community?







Tall stalks of sugar cane have been loaded on a cart to go to the sugar refinery. There the cane will be made into brown sugar and white sugar.

big ones. They're ripe now, and falling to the ground."

The Captain spoke up. "It looks like a good pecan crop this year. I've noticed men beginning to sell them from baskets along the streets downtown."

Granny's eyes twinkled when she heard talk of pecans.

"Pierre, you bring me a nice bag of them, crack the shells, and pick the nut meats out, and I'll make a pecan pie," she said. "I'll use fresh New Orleans butter and eggs in it."

On Thanksgiving morning Marie gathered some bright yellow chrysanthemums which were blooming in the back yard. She arranged them in a vase for the table. Marie liked to arrange flowers, and she also liked to paint pictures of them with her water-color set. Someday she hoped to study art. She especially wanted to paint a picture of the *Orleans* someday.

When the family sat down to their New Orleans dinner, Pierre exclaimed: "This is a real Thanksgiving feast! And everything came from close at hand, even in November."

### The International Airport

After dinner Marie helped her mother and Granny clear the table and do the dishes. Then Captain Becker took the whole family for an afternoon ride in the car.

While out riding, they stopped at Moisant International Airport. Although he was a river man, Captain

from the north spend the winter here where it is warm."

When the week end came, Stuart's hunt was a success. He went to the marshes along the river below the city and brought home a fine goose. Then it was time for the other members of the family to decide what they would get for Thanksgiving dinner.

Captain Becker said that his part of the dinner would be fresh shrimp from the French Market. Fishermen brought them in every day during most of the year. Mother would boil the shrimps and serve them in small dishes. Over them she would pour chili sauce made from tomatoes grown in her garden.

"I'll go to the market and get fresh oranges and grapefruit. Louisiana oranges are beginning to ripen," said Marie. "I'll make a fruit salad."

Mother said that she would go to the market with Marie and get some Louisiana sweet potatoes.

"I'll cook them with brown sugar from the big *sugar refinery* at the edge of town," she said. "The refinery makes sugar from sugar cane grown nearby."

"What are you going to bring to the New Orleans dinner, Pierre?" asked Granny.

"Mrs. Wilson next door says that I may gather some pecans from the tree in her yard," he answered. "They are



Becker was interested in air travel. He liked to watch the big planes coming in and taking off. Almost always their Sunday rides included a visit to the airport.

Pierre liked the airport, too. It was a busy place, with travelers arriving from *Latin America* \* and travelers from many states departing for Latin America.

Sometimes the family would wander over to the cargo-loading ramps. Marie liked to see the beautiful orchids which arrived almost daily from the jungles of Central America. Captain Becker and Pierre liked to watch cattle being loaded into the big cargo planes. Many champion cattle were sent from New Orleans to Latin American countries to help build up the herds there. Stuart liked to talk to the pilots.

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\* *Latin America*, the lands in the Western Hemisphere, south of the United States, where Spanish, French, or Portuguese is spoken. These languages come from Latin.

"This is a good way to spend Thanksgiving afternoon," said Granny.

The others agreed.

### DO YOU KNOW?

1. How do big cities depend upon other parts of the country?
2. During what season are wild geese in the South? When do they go north again?
3. What did each member of the Becker family furnish for the Thanksgiving dinner?
4. Where did many of the travelers at the airport come from?
5. What kinds of cargo did the Beckers see being loaded and unloaded at the airport?

### LEARNING BY DOING

You might like to plan a menu for a Thanksgiving dinner that would contain only foods that are raised in your state. Read it to your classmates. Listen to their menus and try to find out about the foods listed.

### BEING A GOOD CITIZEN

How do you think the Beckers feel about their state? How do you feel about your state? Tell about the products, beauties, climate, and other things that you like.

New Orleans' location makes it a good "jumping-off place" for air travel to Latin America. The map on page 258 will show you why. The airport at New Orleans is called "international" because it handles goods and passengers from many countries.







During Christmas vacation Pierre and his friends went to City Park for a picnic. Is this the way your community looks in the wintertime? New Orleans has a warm climate, so winters there are very mild.

## Winter in New Orleans

During Christmas vacation Pierre's Cub Scout pack had a picnic on Boy Scout Island in City Park. Pierre knew that when he was eleven years old and a Boy Scout, he could go on overnight camping trips on the island.

It was a sunny day, with just a bit of nip in the wind as the boys crossed Bayou St. John and entered the park. There were roses, poinsettias, camellias, and hibiscus in bloom around the art museum.

Near the museum Mr. Taylor, the pack master, stopped under a giant live oak tree.

"This is one of the old dueling oaks, boys. This used to be a favorite spot to fight duels with swords or pistols."

Pierre said, "That seems a dumb way to settle an argument, doesn't it?"

"Yes, a very unsatisfactory way, I should think," agreed Mr. Taylor.

Jimmy thought for a minute, then said, "I guess that's what countries try to do when they fight a war—settle an argument by fighting."

"I'm afraid that is true, Jimmy," said the pack master. "Perhaps as countries we'll soon learn to do better, just as individuals have."

Heading toward the back of the park and Boy Scout Island, the boys walked along an avenue lined with tall palm trees. They saw people playing golf on the park course, and others playing tennis on the park courts.



As they crossed the lagoon on the foot bridge that led to the island, Jimmy asked, "Did you ever fish out here?"

"Once in a while," Pierre answered. "My brother has caught a couple of nice bass back here. I've caught some perch from Bayou St. John out by the gate."

After their picnic lunch the boys played softball. Then as it began to get cooler in late afternoon, they gathered their belongings and started home.

### The Busy Water Front

One winter day Stuart took Pierre and two of his friends to visit the water front. Pierre had seen the port from the wheelhouse of the *Orleans* and had told Jimmy and Keith about it. Now Stuart took the boys to see what happened on the wharves where the cargo was handled.

"What goes on in those big sheds?" asked Pierre as they neared the river.

The January sky was clear and blue, and the wind was nippy.

"I'm going to show you," said Stuart. "Wait until we reach the wharves."

"What are these train tracks for?" asked Jimmy.

"They are for freight trains," said Stuart. "Some cargo comes down the river on barges. Big trucks bring some, too. Other cargo comes by train from all over the country. The freight cars are switched to these tracks, to be close to the ships."

They entered the back door of one of the cargo sheds. The boys were surprised to see how large it was.

"It's as big as a football field with a roof over it," said Pierre.

Stuart laughed. "You haven't seen anything yet. There are miles and miles of wharves like this. New Orleans has a long water front."

The cargo wharves at New Orleans have large covered sheds where goods can be stored. The first time Pierre visited the cargo shed shown in this picture, he said, "It's as big as a football field!"







Coffee does not grow in our country, but we use a great deal of it. So thousands of sacks of coffee are brought by ship to New Orleans.

sacks. The men on the wharves call the powerful little tractors "shop mules." They pull heavy loads of cargo that used to be moved by mules in the old days.

"Where did this coffee come from?" shouted Pierre. He could hardly make himself heard above the noise made by the swinging *cranes* and rattling trucks.

"Read the labels on the bags," said Stuart.

"This one says Colombia," Jimmy said.

They also saw bags from Costa Rica and Brazil.

After a time they walked through another shed. Here they saw big cream-colored bales being unloaded from a ship.

"What's that?" asked Jimmy.

"*Sisal*," Stuart answered. "*Sisal* is fibers from plants that grow in hot, dry climates. These fibers are tough and strong. They will be sent to a factory and be spun into cord and rolls of twine for binders and hay balers."

Then Stuart suggested that they visit the banana wharf. As they walked along, they saw heavy road-building machinery stored in one shed. It was ready to be loaded on a ship. In another shed they saw piles of shiny aluminum roofing.

Soon they came to a sleek white ship tied up at the wharf. Four *conveyors* reached from the wharf into the ship.

These bales of sisal have come from a hot, dry country. The tough, strong fibers will be used to make cord and twine.





Banana boats are unloaded by means of conveyors that reach down into the hold of the ship. Moving belts bring up the bunches of bananas.

They were long, moving belts with pockets on them. The pockets were empty when they went down inside the ship, but each one carried a bunch of bananas when it came out. Workmen in the ship had put the bananas in the pockets.

"A whole shipload of bananas can be unloaded by the conveyor belts in a few hours," said Stuart.

The boys watched the steady parade of bright green bananas moving past them on the conveyors. Workmen lifted them from the pockets and carried them into railroad cars or loaded them into big trucks. License plates showed that the trucks came from many states.

"Why are the bananas green?" asked Pierre.

"They are green today," Stuart explained, "but they will be yellow in a few days. Bananas ripen quickly after they are picked. These have been rushed here from Central America, where they grow all year round. Now fast trains and trucks will take them all over the country, to be sold in stores just as they ripen."

At that moment they saw a bunch of yellow bananas come ashore. "Those have ripened too soon," said Stuart. "They would spoil before they could be delivered to some other city."

The foreman broke off a small cluster of the ripe bananas and tossed them to

The easiest way to unload molasses is by pumping it through a big hose. It is stored in tanks before being canned or bottled for sale.



Stuart. He shared them with the boys, and they ate them as they watched the cars and trucks being loaded.

### New Orleans Is a Trading Post

On the way home, the boys talked about the many products that moved in and out of the port of New Orleans.

"We get things we want but which cannot grow in our country," Jimmy said. "For instance, bananas, coffee, and sisal."

"And we send other countries the things they need—automobiles, farm machinery, and grain," said Pierre. "That way, everyone gets what he wants."

"New Orleans is like a trading post," Keith said. "It is a meeting place for goods from all parts of the United States





and from countries all over the world.”

“New Orleans is a meeting place for something else, too,” added Stuart. “The customers that buy the goods. Many businessmen come here to buy or sell products. A great many of them come from Latin America, for two reasons.

“First, New Orleans is close to their countries. Second, New Orleans businessmen are friendly and make it easy for them to do business here. They have built International House, where businessmen from foreign countries can meet the people they need to see. And they

Ships and airplanes carry goods and people between New Orleans and the cities of foreign countries. Which canal is used by some of these ships? On which continent is New Orleans? What other continent is shown on this map?



have built International Trade Mart, where they can exhibit the products that their countries have for sale.”

“Will you take us to the International Trade Mart?” asked Pierre. “I’d like to see things made in foreign countries.”

“Some other day,” Stuart said. “We would need plenty of time to see all the different things that are for sale there.”

### DO YOU KNOW?

1. What are winters in New Orleans like?
2. Why was the big oak tree called a “dueling oak”? Do men fight duels now?
3. How should countries settle their quarrels?
4. What did the Cub Scouts see in City Park? Does your community have a park? What do you do there?
5. How does cargo get to the wharves in New Orleans? Why are railroad tracks so near the water front?
6. What kind of coffee did the boys see at the wharf? Where did it come from?
7. What is sisal? What is made from it?
8. How are bananas unloaded from ships? Where do they come from? How are they sent to all parts of the United States?
9. What kinds of machinery are used to load and unload ships? How does this make the work easier for the men on the wharves?
10. In what way is New Orleans like a trading post?
11. What are the International House and the International Trade Mart?

### LEARNING BY DOING

Can you draw a picture that shows people from other countries trading with people in our country? Show the products they are buying and selling. Tell what the people are saying. You may want to show words coming from their mouths.

### BEING A GOOD CITIZEN

How do traders and businessmen help our country? In what ways would your life be different if we did not have trade with other countries?





Mardi Gras means playtime for both children and grownups in New Orleans.

## Mardi Gras Means Playtime

Soon after Christmas, New Orleans starts a season of gay celebration, called *Carnival*. For several weeks there are dances, parties, and parades.

The last week of Carnival is the gayest of all. It gets more and more exciting until at last comes *Mardi Gras*, the final and most exciting day.

Thousands of visitors from other cities crowd into New Orleans each year to see the Carnival. And all the people who live in New Orleans look forward to having fun. They watch the parades and sing and dance in the streets. On Mardi Gras most of them wear fancy-dress costumes and masks.

About a week before Mardi Gras, Mrs. Becker and Marie were putting the finish-

ing touches to the costumes for the family. They were all going to dress alike, as clowns. Their suits were bright red with white polka dots. Pierre tried his on as soon as it was finished.

Mrs. Becker was sewing the last pom-poms down the front of the other suits. Marie was making high pointed hats out of cardboard covered with polka-dot cloth. "Here, Pierre," she said. "Yours is ready now."

Pierre put it on and looked in the mirror. "I make a good clown," he said, laughing at himself. "All I need is a red nose."

"Has it always been the custom for families to dress alike on Mardi Gras?" Marie asked her mother.





Each Mardi Gras parade is planned around some special idea, with many floats to tell the story. It takes hours for a parade to pass by.

"Not always," her mother answered. "This custom started more than one hundred years ago, and it is still popular. But Mardi Gras celebrations and Carnival parades have been going on for a longer time than that."

"I'm glad we're getting the costumes finished before the week end," Marie said. "I want to go to the Children's Parade on Saturday."

"Will you take Keith and Jimmy and me with you?" asked Pierre.

"Of course," Marie replied. "But promise that you won't get far away from me. It would be hard to find you again in that big crowd."

"Don't forget tomorrow," said Mrs. Becker. "That's the day of the river parade, and Dad wants you to ride with him."

On one day in the last week of Carnival, all sorts of little boats paraded on the river. Any tugboats that could leave their work were in the parade, too. This year Pierre and Stuart and Marie rode aboard the *Orleans* with their father. Like the other boats, it was decorated with bright colored flags. The boats blew their shrill whistles during the whole parade. Blocks away from the river, people knew from the noise that the river parade was going on.

### A Night Parade

Carnival spirit grew gayer and gayer as Mardi Gras drew near. Every night there was a different parade. Each parade was planned around some special idea, with many elaborate floats to tell the story.

One parade had a float for each of the wild flowers that grew near New Orleans. Another told the story of "Alice in Wonderland." And another showed how the pioneers came to settle in America.

On Monday night the Beckers went to see the last of the night parades before Mardi Gras. The crowds jammed the sidewalks, and many people had to walk in the streets. Everyone was laughing and singing and tooting horns. Popcorn and peanut stands lined the sidewalks.

"I like the night parades best of all," said Marie. "Especially when I can watch them from somewhere in the French Quarter. Hundreds of toy balloons floating from the narrow iron bal-



conies—bright lights sparkling on the shiny floats—it's like a picture of fairyland."

Suddenly a glow appeared in the sky. There was a loud rumbling sound as motorcycle policemen approached, clearing the way for the floats. A cry went up, "Here it comes! The parade is coming!"

Behind the policemen came the Captain of the Krewe, or Carnival club. There are many Carnival clubs in New Orleans, and each club has its own Captain.

This Captain wore a knight's costume and a mask. His long velvet cape flowed down over the back of his prancing horse. Bright plumes in the knight's helmet swayed as he rode.

Then the brightly colored floats started to pass. Several men in costumes and masks rode on each float. They were

members of the Carnival club. Crowds of people watching the parade stretched their hands in the air and shouted, "Throw me something, Mister!" All along the way the cry arose, "Throw me something, Mister!"

Stuart jumped into the air as a man on a float hurled something his way.

"I got it!" he shouted, and handed Marie a pretty string of beads.

"Look!" yelled Pierre. "I got a whistle." He laughed. "Dad just caught a funny little rubber dog."

Everyone tries to catch Carnival trinkets at a Mardi Gras parade, because it is considered good luck.

Between the floats were marching bands in fancy uniforms. Some came from other cities, some even from other states. The musicians marched briskly and played loudly.

Solid crowds, as far as you can see, jam the street and sidewalks to watch this Mardi Gras parade. Canal Street in New Orleans is very wide, so the parade can come down one side and go back along the other side. Thousands of people come to New Orleans each year for Mardi Gras.





It took a long time for the parade to pass. Pierre was sleepy before the Becker family started home.

"You'll be too tired for Mardi Gras tomorrow," said his mother.

"Oh, no," said Pierre. "I'll wake up early for that."

### **Fun at Mardi Gras**

Mardi Gras day was bright and clear. Granny helped the family into their clown suits and hats. She had decided to stay home this year.

"I'll watch the young people going by in their costumes and remember many happy Mardi Gras days in the past," she said.

As the family neared Canal Street, they saw more and more gaily decorated trucks with masked riders.

"Trucks have been decorated by small groups all over town," said Mother. "They will follow the big parade through the streets this morning."

"Let's put on our masks now," said Pierre.

"All right," said Mother. "And remember, we leave them on until sunset. It's the custom for all masks to come off at sunset."

The Mardi Gras parade was even more exciting than the one the night before. Now the Beckers were swept along in a churning mob of people in costumes and masks. Pierre held tightly to his father's hand.

During the excitement Captain Becker paused a moment to look around. With a smile he said to Pierre, "I wonder what would happen if some visitors who didn't know about Mardi Gras dropped into

town. They might think that New Orleans had gone wild with excitement. But if they saw us on any other day of the year, they'd know better."

The day passed as one long, gay party. There were candy and confetti, popcorn and whistles. There were afternoon parades and one big night parade.

Then it was over. With midnight came Ash Wednesday and the beginning of Lent. Many people went immediately to a midnight church service.

After it was all over, Pierre was more tired than ever before in his life. He felt that he would like to sleep for a week. But he knew that he had to wake up the next morning. And when he did, all signs of the party would be gone. New Orleans would be hard at work again.

### **DO YOU KNOW?**

1. What is the Carnival in New Orleans like? Which part is called Mardi Gras?
2. Why has New Orleans held these celebrations for many years? Does your community have any special celebrations?
3. What did the different parades show?
4. What part of Mardi Gras did you like best? Why?

### **LEARNING BY DOING**

You and your classmates could show what Mardi Gras looks like if you would each draw a large picture. Some could draw floats. Some could draw bands marching. Others could show families wearing their costumes and masks. Perhaps you could put the pictures up above your chalkboards, or set them on the chalkboard ledge, to show the whole parade.

### **BEING A GOOD CITIZEN**

Do you think that Carnival interferes with people's work in New Orleans? Or do you think that a week of fun helps them to work harder? Do you let fun interfere with work?





The Mississippi River winds its way along in big, wide loops. The busy New Orleans water front stretches for miles along the curves of the river.

## Springtime in New Orleans

Spring arrived, and the river was rising. High water means that the fishing at New Orleans is good. Stuart liked to fish for catfish in the river, and he often took Pierre along. When they brought their catch home, Granny made corn bread to go with the fried catfish. Catfish is considered a great treat in New Orleans, and the whole family enjoyed these spring fish fries.

The days were warm, with gusty winds. Pierre and his friends often flew kites on

the levee. Marie helped her mother in the garden. She spent part of her time painting pictures of the magnolia blossoms and other flowers which were coming into bloom. Granny busied herself airing winter bedding and clothing and storing it away.

### The Mississippi Is a Mighty River

One Saturday Captain Becker took Pierre with him on the *Orleans*. The tugboat's first task was to help move a ship





Rivers are useful for water transportation. But they hinder land transportation unless bridges are built. This bridge for railroad trains and automobiles crosses the Mississippi near New Orleans. See if you can find it in the picture on page 263.

downriver in the high, fast-moving water. There was one very dangerous bend in the river. The tug's job was to help the ship around that bend.

"Spring rains and melting snow in the northern states certainly keep the tugboats at New Orleans busy at this time of year," said Captain Becker. "All that water draining into the Mississippi brings the river up fast."

Pierre looked at the driftwood rushing past the *Orleans*. He saw a whole tree that had been washed away. It swept by with its roots sticking up out of the water.

Soon they reached the ship which was ready to leave port. The tug *Harbor Queen* was already alongside it. After the *Orleans* made its lines fast, the two tugs moved the ship out into the river.

"Where is that dangerous bend, Dad?" asked Pierre.

"Up ahead," his father answered. "We're approaching it now."

Suddenly the current made the big ship

lurch sharply to the left. It headed toward the docks and for a moment it looked as if the ship were going to crash into a wharf. Pierre watched his father's strong, weathered hand quickly shove the telegraph to FULL SPEED AHEAD. The ship slowly responded to the pushing of the tugs. The bow turned out from the wharf and headed into the center of the river.

Captain Becker looked at Pierre and winked. "Pretty strong current, eh?"

Pierre nodded.

Soon they were past the dangerous bend. The big ship signaled the tugs to pull away. It released the tugs' towing ropes and headed downriver alone, toward the Gulf of Mexico.

On the way upriver the *Orleans* passed the *President*, which was tied up at the foot of Canal Street. The *President* took tourists and groups of school children on tours of the harbor.

"The *President* looks new and shiny," remarked Pierre.



In steamboat days, cargo had to be loaded and unloaded by hand. There was no machinery to help with that work. This picture shows how the *Cincinnati* looked in those days. Now she has been rebuilt and named the *President*. The picture on page 271 shows the *President* in the background.



Captain Becker laughed and his eyes twinkled. “She’s shiny, son, but she’s not new. The *President* was once the *Cincinnati*. She was a side-wheeler in steamboat days. For years she carried cotton down the river from Natchez to New Orleans.”

Captain Becker pointed to the Poydras Street wharf.

“That was the old steamboat landing, son. In days gone by, when the *Cincinnati* was carrying cotton, she tied up there with other steamboats. They tied up nose first, so close together a man could step from one to another.”

“What other cargo did the steamboats carry?” asked Pierre.

“Lots of cargo—cotton, coal, leather, grain, lard, and many other things,” replied his father. “Many people traveled on steamboats, too. The passenger ships were floating palaces with big dining rooms and places to dance. At night they were beautiful, steaming down the river all lighted up. The orchestra was playing, the people were singing and dancing, and the captain saluted every landing with a blast of his whistle.”

“They’re all gone now?” asked Pierre.

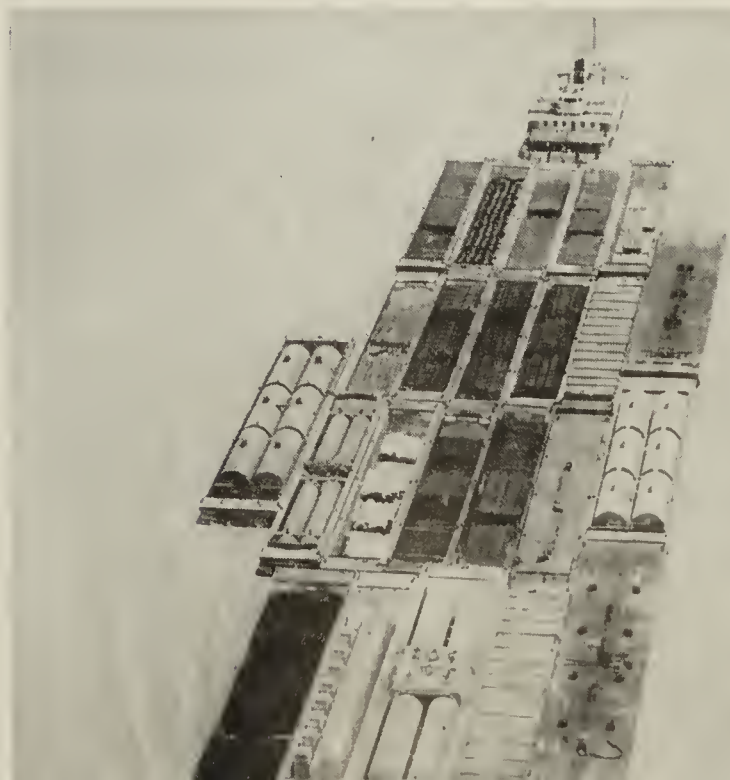
Captain Becker gazed out across the river. His eyes looked thoughtful as he spoke. “All except a few like the *Cin-*

*cinnati* that are excursion boats. They were replaced by barges.

“Barges may not be as beautiful as the old-time steamboats, but they are more useful. They can travel in shallower water, and they can carry more cargo. A string of barges pushed by a tug can carry as much freight as sixteen railroad cars.

“Barge transportation is slow, but it is the cheapest way of carrying heavy goods.

“Boats have changed some, son, but the river never changes. It will always be the biggest water highway in this country. You can take cargo from New Orleans clear up to the Great Lakes, across to New York City, and even to Montreal, Canada. It’s a mighty river and an important one.”



Barges can carry big loads of heavy goods. This string of barges, pushed by a tug, is taking oil, gas, iron pipes, and other products down the river.





Lacy iron balconies decorate many buildings in the French Quarter. This part of New Orleans is most popular with tourists.

### A Trip to Jackson Square

One Saturday in May, the pack master took Pierre and the other Cub Scouts on a trip to Jackson Square. This square is in the center of the French Quarter, the oldest part of New Orleans.

The sun was warm and the boys stood in the shade of tall banana plants in the square for a few minutes. Then they crossed Chartres Street to an old brick building, the Cabildo.

"The Cabildo was built during the time that Spain ruled Louisiana," Mr. Taylor told them. "All of the government offices were here. It was like City Hall or a state capitol building. Now it houses the Louisiana State Museum. There are

many articles here to show what life was like in olden days."

"Look at these old ship models!" called one of the boys as they entered a room on the first floor.

"Yes, those are models of ships that sailed into New Orleans a long time ago," said Mr. Taylor.

Pierre and some of the other boys began to inspect the rooms adjoining the courtyard. In one they found a collection of articles belonging to the pirates Jean and Pierre Lafitte. They saw a compass, spy glass, ship's lantern, water jug, powder horn, and other relics from the old pirate ship.

"Look at these folding knives. Mean looking, aren't they?" said Pierre. "Is that old pirate money over there?"

"Yes," answered the pack master. "'Pieces of eight,' the pirates called those coins, because they could be cut up into smaller pieces."

Leaving the Cabildo, the boys noticed a guide with a large group of people arriving in a sightseeing bus. Another group of sightseers had just left.

"Do lots of people visit the Cabildo every day?" Pierre asked.

"Yes, many tourists come to New Orleans all year round," said Mr. Taylor. "They like to see the sights in the old part of town. The Cabildo is one of the things they especially want to see."

Near the Cabildo is another old building. It now houses the Louisiana Natural History Museum.

"Let's go see some of the stuffed birds and animals," suggested Pierre.

In the museum the boys passed the glass cases and exhibits slowly. They



tried to name as many of the birds and animals found in Louisiana as they could. There were pelicans, different kinds of ducks and geese, sea birds, a bald eagle, a black bear, deer, a squirrel, a raccoon, an opossum, and a muskrat.

Upstairs they saw a collection of snakes found in Louisiana. There were the banded rattler, diamond-back rattler, water moccasin, blue racer, and others.

"It will soon be time to go home, boys," reminded Mr. Taylor. "Let's walk through the French Market first."

They crossed Jackson Square and came to the old market.

"When the first settlers came to New Orleans, they started this market place on the bank of the river," said Mr. Taylor. "Indians brought things they made and grew, to trade for things the early settlers had. It was a regular trading post."

"Just like International House and International Trade Mart today," said Keith.

"Yes," Mr. Taylor replied. "The French Market helped old New Orleans grow. And now the two new trade centers are helping our New Orleans grow more and more."

### DO YOU KNOW?

1. What kind of fish did Pierre and Stuart catch in the river?
2. What did the other members of the family do in the spring?
3. What made the river high at this time of year? What does the high water carry with it?
4. Why did Captain Becker's tug help a big ship around a dangerous bend in the river?
5. What cargo did the steamboats carry? What were the early passenger boats like?
6. Why are barges more useful than the old-time steamboats?



In the old part of New Orleans, some homes have inner courtyards. Walking into these beautiful, peaceful spots is like visiting another country.

7. Why is the Mississippi River important to our country?

8. What did the boys see in the Cabildo and in the Louisiana Natural History Museum?

9. What do tourists like to see in New Orleans? Do tourists come to your community? What do they like to see?

10. Who started the old French Market? Who first traded there?

### LEARNING BY DOING

Pretend that you are a tourist visiting New Orleans. Write a diary telling about the places you have visited and what you saw in them. Make it sound as real as if you were actually there. You might like to draw some pictures to show what things were like.

### BEING A GOOD CITIZEN

How do you think the Cub Scouts could show the pack master that they appreciate the things he does for them? How do you show your appreciation to people who take you places?





Hurricane-hunter planes zoom off to find where a big storm is starting. As it travels along, they fly with it and send radio messages to tell which way it is heading. This picture was taken in Florida.

## Hurricane Warning

Summer passed quickly. Pierre helped his mother by mowing grass and weeding the garden. Hot days and frequent showers make grass and plants grow fast in New Orleans.

One morning when he came down to the breakfast table, he found his family excited.

"A *hurricane* is coming," said his father. "There is lots to be done."

These giant storms can do a great deal of damage. They sometimes form in the Caribbean Sea and the Gulf of Mexico. They often strike the southern states and sometimes hit around New Orleans.

"How do you know a big storm is coming?" Pierre asked.

"A hurricane-hunter plane has spotted it," said his father. "The storm is heading toward New Orleans at the present time. We must all help today."

When a hurricane threatens to strike New Orleans, everyone helps if he is able. There is much to be done. The people who live in small houses in the marshes must be brought to safety. Then they must have food and a place to sleep. The Red Cross uses schools and the auditorium in caring for them. All the ships in the harbor must be moored safely.

"Granny and I will go to the auditorium," said Mrs. Becker. "We will help in the Red Cross soup kitchen. Marie can come with us. She can open cots and set them up for sleeping."

"I will take the car and bring people in from the marshes," Stuart said. "I know the marshes well from hunting trips."

"All the tugboats will be busy today," said Captain Becker. "I've called the crew of the *Orleans* to meet me at the landing. You come with me, Pierre.



Hurricanes bring high winds and high water that do great damage to property. Here the ocean has covered a boulevard between rows of palm trees.

You know where things are aboard the tug and can help me. We will have a busy day. The hurricane will be here by morning unless it changes course."

Stuart took Captain Becker and Pierre across the river to the tugboat landing. Later he took his mother, Granny, and Marie to the auditorium. Then he drove to the marshes to help bring in people.

### A Stormy Day on the River

Everyone at the tugboat landing wore raincoats. It was rainy and windy. Black clouds went racing by, the strong wind driving them fast. Slowly the sky turned blacker.

"We'll have squalls by night," said Captain Becker, as he looked at the clouds with experienced eyes.

The crew boarded the *Orleans*, and Pierre climbed with his father to the wheelhouse. When Captain Becker turned on the radio, they could hear the lively crackle of conversation. Tugboat captains were talking to each other and to the captains of ships who were looking for a safe place to dock. Mr. Herbert ordered the *Orleans* to help a ship, and Captain Becker hurried toward it.

"Getting all the ships docked is only a start, son," he said. "There's always the danger of a ship breaking loose and drifting in the river."

As the *Orleans* neared the ship it was to help, Captain Becker shook his head. "It will be hard to pass the lines up to the ships today," he said. "The river is rough and the wind is bad."



Pierre nodded. Even though they were inside the wheelhouse, he could tell that it was rough outside. The *Orleans* swayed from side to side. Big muddy waves splashed across the bow of the tugboat. Sudden gusts of wind spattered rain against the glass windows of the wheelhouse.

"It's going to take two deck hands to handle the stern line," said Captain Becker. "I'll need your help, son."

He lowered the window on the right side of the wheelhouse. Then Pierre jumped with surprise as his father's voice boomed out. Usually he spoke quietly, but now he had to make himself heard above the roar of the wind. The deck hands looked up when he shouted.

"When you have passed up the first line," he called down to them, "go astern. The boy will work the *winch*."

A winch is a very large spool. When a starter button is pressed, the winch turns. It winds up heavy steel cable as easily as thread is wound on a small spool. Pierre had never worked a winch but he had seen the deck hands do it many times.

"Button your coat tight, son," said Captain Becker, "and go down by the power winch. When I call to you, press the



red button. When I say Stop, take your hand away. Mind you, son, keep your eyes on the wheelhouse every second."

Captain Becker opened a cupboard and rummaged through some clothing inside. "Here, wear this to keep your head dry. It's better than your cap." He handed Pierre a mate's cap. It was old and battered and too big, but Pierre was proud to wear it.

Down on deck of the pitching tugboat, the wind whipped at Pierre's face. Rain stung his cheeks and almost blinded him. He kept his eyes on the open wheelhouse window as the tug swayed and rolled in the water.

"Press it, son," shouted his father. Pierre pressed the red button, and the giant spool began to turn. As it wound in the cable, the tug was pulled firmly alongside the ship.

"Stop!" shouted his father.

Pierre lifted his finger. The big spool stopped turning, and Pierre made his way back to the wheelhouse.

"Thanks, son. Now check to see if the running lights are on," said Captain Becker.

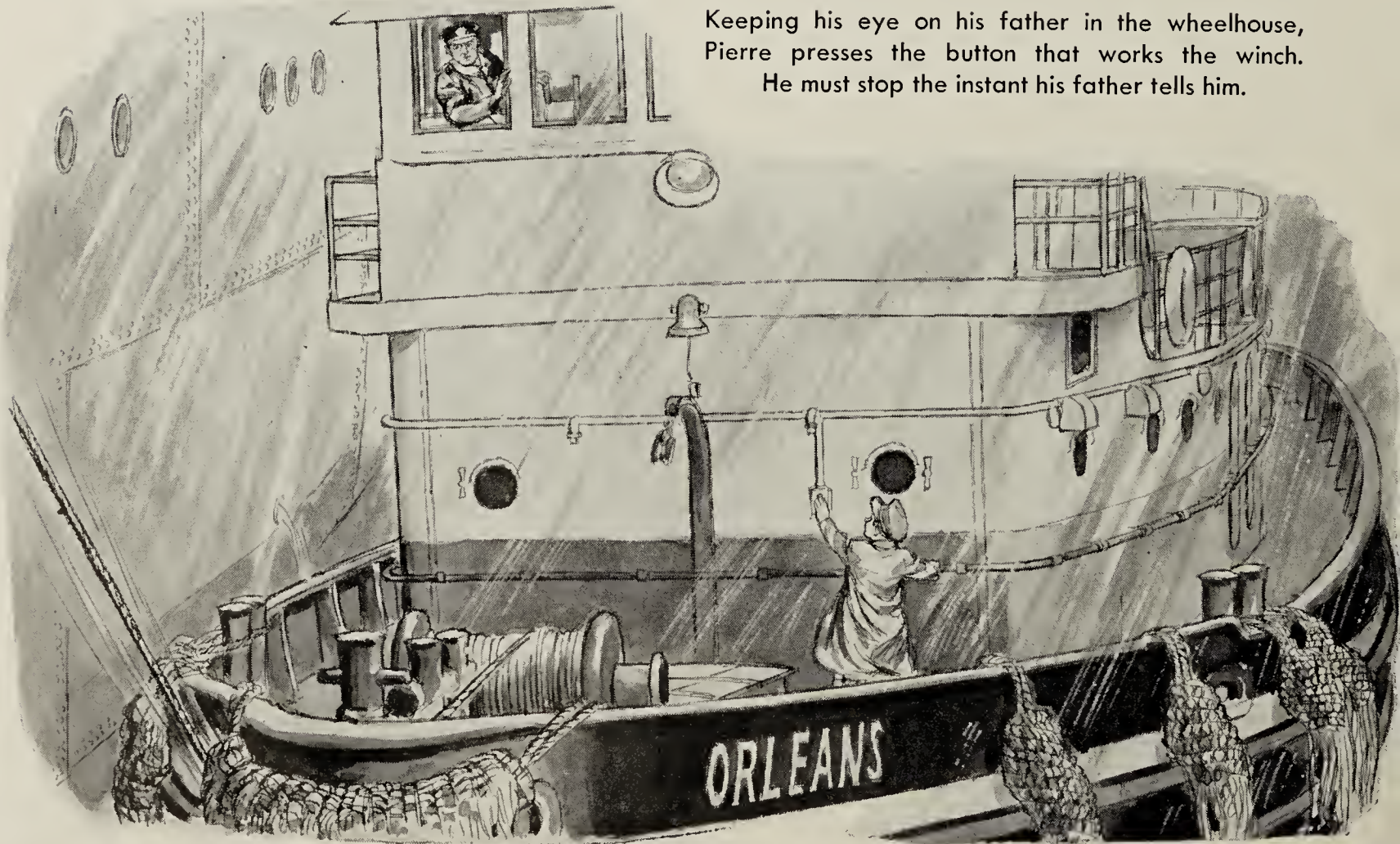
The tug moved the ship to an empty wharf and helped it dock. Rain still dampened Pierre's face, but he was happy. He hung the dripping mate's cap on a coat hook. Every now and then he glanced at it.

### A Day to Remember

They spent the whole day helping ships into port. Pierre made several trips to the galley for coffee and sandwiches for his father. Once he held the steering wheel while the captain gulped a sandwich.

During the afternoon a big freighter broke loose. Whistles blew wildly, and

Keeping his eye on his father in the wheelhouse, Pierre presses the button that works the winch. He must stop the instant his father tells him.





A fire tug has special equipment for fighting fires in a harbor. It can squirt streams of water in every direction.



tugs raced from every direction toward the drifting ship.

"Can we catch it?" asked Pierre.

"Someone will," said his father calmly, as they raced toward the ship. "There are plenty of tugs on the river today. Every tug in port is working or standing by to help."

As they neared the drifting ship, Pierre saw the *Lillian* race alongside it. Another tug joined the *Lillian*. It was the *Spout*, the fire tug with special equipment for fighting fires. Pierre had seen it squirting water one day in practice. If there is a fire in the harbor or aboard a ship, the *Spout* hurries to spray water with its pumps.

Pierre watched the *Spout* and the *Lillian* take the drifting freighter in tow. They moved it back to the dock. The *Orleans* stood by until the signal came that the ship was tied safely.

Late that afternoon Captain Becker turned on the radio for the hourly weather bulletin. He heard good news. The hurricane had changed its course and would not hit New Orleans after all.

"We're lucky," said his father. "The main part of the storm will pass west of us. But we couldn't take any chances before we knew that."

"Do hurricanes kill many people?" Pierre asked.

"They used to, son," replied his father, "but with hurricane-hunter planes to give warning in advance, and with everyone working together, few people are hurt

by hurricanes now. The storms do great damage to property, though."

Pierre was tired but he stood at the wheelhouse window, still on the lookout. A ship might still break loose and need help from the *Orleans*.

It had been a day he would never forget. As the tug moved up the river toward the landing, Pierre said to himself, "Now I know what old Captain Johnson meant when he told Dad it takes more than just a license to be a good pilot."

#### DO YOU KNOW?

1. What is a hurricane? How can people tell when one is coming?
2. What did the members of the Becker family do when they learned that a hurricane was coming?
3. What made Captain Becker's work unusually hard that day?
4. How did Pierre help his father?
5. What happened when the big freighter broke loose?
6. Do you understand what Captain Johnson meant when he told Captain Becker, "It takes more than just a license to be a good pilot"?

#### LEARNING BY DOING

1. Add the story of the hurricane to your diary.
2. On a map, find where hurricanes begin.

#### BEING A GOOD CITIZEN

Why do the people of New Orleans do so much for others when a storm threatens? What do you think of the way they work together? How have people in your community worked together to help others who were sick, hurt, or in danger?





The big sheltered harbor at Yokohama can hold hundreds of ships, large and small. What do you see here that reminds you of New Orleans? What do you see that is different?

## Living in a Japanese Port

The tugboat *Orleans* slowly pushed the Japanese freighter, the *Taku Maru*, into the swift current of the Mississippi River. A few minutes later the whistle on the *Orleans* gave a sharp blast. There was an answering hoot from the *Taku Maru*. Then the freighter started downstream loaded with a thousand bales of cotton which she had taken on at a New Orleans wharf.

The *Taku Maru* steamed across the Gulf of Mexico and through the Caribbean Sea to the Panama Canal. It took her a day and a half to go through the Canal. Then she was on her way across the Pacific Ocean.

Not quite a month after leaving Panama, the sailors on the *Taku Maru* caught their first sight of land. It was one of the islands of their native country, Japan. A few hours later they were looking with joy at the low green hills that surround the great ocean port of Yokohama.

### The Great Harbor

It was Sunday. The little waves in the bay sparkled in the sun. Along the shore more than 50 freighters and ocean liners lay quietly, tied up at the wharves and piers. Then a tugboat cut across the water. The freighter slowed down. Suddenly a sailor on the *Taku Maru* began



This is Asia. With which continents is Asia connected? In which direction is Japan from the mainland of Asia? Japan is an island country. In which ocean is it located?



to wave and call, "Hello, Fujio! Hello, Fujio!"

A young boy on the deck of the tug looked up. He called to someone in the cabin of the tug. A woman came running. As she and Fujio stood together, the sailor on the freighter could hear them calling over and over, "Welcome home, Big Brother Taro, welcome home!"

The tug came alongside and a line was thrown to Fujio from the freighter. His mother fastened the line, and in a few minutes the tug and freighter were on their way to a long wharf.

Slowly the *Taku Maru* was eased into place. The gangplank came down and part of the crew rushed ashore, eager to see their families they had left three months before. One of the first men ashore was Big Brother Taro.

### Home on a Japanese Tugboat

Taro ran to the end of the wharf where the tugboat was waiting. He climbed aboard, stopped, and bowed low to his mother. He shook hands with Fujio, then went into the cabin and bowed to his father, who was standing beside the steering wheel. Just then baby sister Mariko toddled into the cabin. Taro picked her up and gave her a warm hug.

For a long time after that, the family

listened to Taro's adventures aboard the freighter. And they had many things to tell him about their life on the tugboat.

From the outside, the tugboat looked much like any tug. It was short and wide and sat low in the water. But inside the tug was very different from the one that Pierre's father ran. It was more than just a tug; it was also a home.

Here Papa-san, Mama-san, and baby sister Mariko live. At night, when the tug is tied up at the wharf, Mama-san opens a cupboard, takes out thick quilts, and lays them on the floor of the cabin. Soon everyone is fast asleep.



In Japanese hotels and homes, everyone sleeps on the floor. Notice that the walls are made with sliding doors, to let in light and air.

Ewing Galloway





the bowls and eat the rice with chopsticks, which they use instead of forks or spoons. In the winter they eat from a low table while sitting on the floor of the cabin. In the summer they often eat on the deck outside and throw the crumbs to the sea gulls.

Every morning after breakfast Mama-san goes to shore and buys food at the market. Because she has no refrigerator, she likes to buy the food fresh every day. At the market she gets fish and some vegetables such as cabbage, carrots, green peas, onions, sweet potatoes, and once in a while, some lotus roots. Sometimes she brings home bananas or peaches. If the persimmons are ripe, she will buy one for Papa-san. This is his favorite fruit.

In the morning Mama-san cooks a breakfast of rice and soybean soup and makes tea over a tiny charcoal fire. She serves breakfast to the family in little bowls. They drink the soup and tea from

### Off to School

Fujio goes to a big school in Yokohama. During the week he lives with his uncle in the city, but he spends week ends with

The top picture shows that Japanese school children decorate the walls of their classroom with pictures they have collected, just as you do. In the school yard they like to run and play games.





his family on the tugboat. Early every Monday morning Fujio bows to his mother and father, picks up the little bag that holds his books, and climbs off the tug onto the wharf. Nearby he catches a bus which takes him to his school.

Fujio wears a dark blue jacket with big brass buttons, short pants, and rubber-soled shoes. On his head is a cap. When he gets to the school, he takes off his street shoes and puts on a pair of cloth slippers. This helps to keep the school neat and clean. He goes to his classroom with the other boys and girls. As soon as the teacher enters, the children all bow and say, "Good morning."

What a busy time Fujio has in school! He must study reading, writing, arithmetic, social studies, music, and art. When he is older, he will also study English. During gym time all the boys and girls take exercises to music and directions that come over the school radio.

After school Fujio and his friends love to play baseball or fly kites. Then it is time for him to go home to his uncle's house.

### A Japanese Home

Japanese homes are very different from ours. Fujio's uncle lives in a small house surrounded by a hedge. At the entrance, Fujio again takes off his shoes and puts on a pair of slippers. Inside the house the walls are made of paper panels. They slide open and shut so that the rooms may be made larger or smaller. There is very little furniture—a few low tables, but no chairs. Everyone sits on the floor, or on small pillows. The floor is covered with straw mats.



Yokohama is one of Japan's largest ports. On this map, find the places where ships are loaded and unloaded. Notice that the railroad tracks come right up to the piers.

This is a map of the island country of Japan. How many large islands are there? Are these islands mountainous? On which side of Japan is Yokohama? What bodies of water are to the east and west of Japan? Would you expect to find good ports here?





At dinner that night, Fujio told his uncle all about Big Brother Taro's return.

"Will Taro be home long?" asked the uncle.

"No," answered Fujio, "just long enough for his ship to be unloaded and then loaded again."

### The Busy Wharf

On the Monday morning after the *Taku Maru* landed at Yokohama, Taro hurried back to his ship. He had to help get it unloaded. The wharf was buzzing with activity. Empty trucks were lining up beside the ship. A freight engine pushed a line of empty freight cars along the wharf.

In a few minutes the cranes on the ship were dropping strong wire ropes deep into the hold of the *Taku Maru*. Men signaled, whistles blew, and bales of cot-

ton swung up and over the side of the ship.

Some of the cotton was loaded directly into the waiting railroad cars. At the end of the day, the loaded cars would start off on their trip to a cotton mill in a nearby city.

Not all of the cotton on the *Taku Maru* was loaded into railroad cars. Some of it had been bought by a trader in Yokohama. His cotton was loaded on trucks and carried to one of the many warehouses in the city. There it would be stored for a few months. When a mill wanted cotton, the trader would sell the bales he owned.

By the end of the week the *Taku Maru* was empty. Now Taro and the other sailors began to load their ship. Trucks and freight cars carrying boxes of all sizes rolled onto the wharf. They contained

This Japanese home is long and low, with walls made of lightweight material. There is a wide porch, where members of the family and visitors take off their shoes before going into the house.

Ewing Galloway







Find New Orleans and Yokohama on this world map of trade routes and cities. Which one is closer to Bombay? Would it be faster to go from New Orleans to London or from Yokohama to London?

cotton cloth, rayon cloth, silk, electrical machinery, toys, and many other products that had been made in Japan.

The boxes were put into big rope nets. Men signaled, whistles blew, and the big nets were lowered into the hold of the *Taku Maru*. Five days later the freighter was full.

As the crew members waved good-bye to their families, the stout little tug with Papa-san at the wheel pulled the *Taku Maru* out into the bay. Then away it sailed, perhaps to India, or South America, or Australia, or Africa—wherever people needed the products of Japan.

### Trading Communities Near and Far

We have visited the trading communities of New Orleans and Yokohama. As we continue our social studies in other grades, we will explore trading communities in many other lands. We will find them in almost every country that faces the sea.

### DO YOU KNOW?

1. What did the *Taku Maru* carry to Japan?
2. How did it travel from New Orleans to Japan? How long did the trip take?
3. Where did the *Taku Maru* finally land?
4. How was the Japanese tugboat different from the *Orleans*?
5. How did Taro greet his family?
6. What kind of breakfast did Taro's family have? What did they talk about?
7. What does Mama-san buy at the market?
8. How are Japanese buildings kept clean?
9. In what ways is Fujio's school like yours?
10. What do you like about a Japanese home?
11. How was the *Taku Maru* unloaded and then loaded again in Yokohama?
12. What products are sent from Japan?
13. To what countries does the *Taku Maru* carry goods from Japan?

### LEARNING BY DOING

On a map or globe, trace the route from New Orleans to Yokohama.

### BEING A GOOD CITIZEN

How do Japanese children show their respect for their parents, teachers, and all older people? In what way do you greet older people? How do you show your respect for them?



## A New Look at Trading Communities

### THINGS TO TALK ABOUT

1. How do people of different countries share food, clothing, and other goods?
2. How many foods can you name that people of other countries raise for us?
3. What are some of the things that we send to other countries?
4. What kind of harbor do big ships need?
5. Why are so many great trading cities located on rivers or bays that lead to the ocean?
6. Why do cities near good harbors become large and important?
7. In what ways must workers on wharves and in harbors co-operate while at work? In times of danger?
8. Study the maps on pages 243 and 275. What differences do you see in the ports of New Orleans and Yokohama? What likenesses do you see?

### CHECKING YOUR SKILLS

How good are you during discussion time? Do you do your share in helping to make class discussions interesting and helpful to all?

Some people make the mistake of talking too much during discussions. Others talk too little. We should speak when we have something of value to say. We should stick to the topic being discussed and not start talking about something else.

When others are talking, we should give them our whole attention. If we think about what they are saying, we may learn much.

We must remember that some people's ideas will be different from our own. That doesn't mean that the other person is wrong. You may both be right, or you may both be wrong. Try to find out in a friendly way who is right and who is wrong.

You may help yourself to improve if you will try to follow good rules. Here are some rules that other boys and girls have followed.

1. Take turns.
2. Listen and watch as others speak.
3. Stick to the topic.

4. Don't speak too often, but do your share.

5. Speak in a friendly way.

6. Speak plainly and clearly.

7. Ask questions if there is something you do not understand.

### BEING A GOOD CITIZEN

A good citizen not only tries to help people who live near him, but he also wants to help those who live far away. What have you done to help someone who lives far from you? What other things can you do?

### BOOKS TO ENJOY

Agle, Nan, and Wilson, Ellen J., *Three Boys and a Tugboat*.

Ardizzone, Edward, *Tim to the Rescue*. Tim makes a daring rescue during a hurricane.

Barrington, G. W., *Jan, a Story of a Dutch Barge Dog*.

Bothwell, Jean, *The Borrowed Monkey*. A boy in New Orleans finds a sailor's lost monkey.

Bulla, Clyde R., *Down the Mississippi*. A Minnesota boy makes a trip down the river.

Creekmore, Raymond, *Little Skipper*. Easy story about a boy and a sailboat.

Cumming, Marian, *All about Marjory*. She visits New Orleans at Mardi Gras time.

Elting, Mary, *Ships at Work*. Story of a seaman, and the history of boats and ships.

Gossett, Margaret, *The First Book of Boats*. All kinds, from rowboats to houseboats.

Heal, Edith, *The Golden Bowl*. About a New Orleans girl and her friends.

Hogeboom, Amy, *Boats and How to Draw Them*. Many kinds of boats, and directions for drawing them.

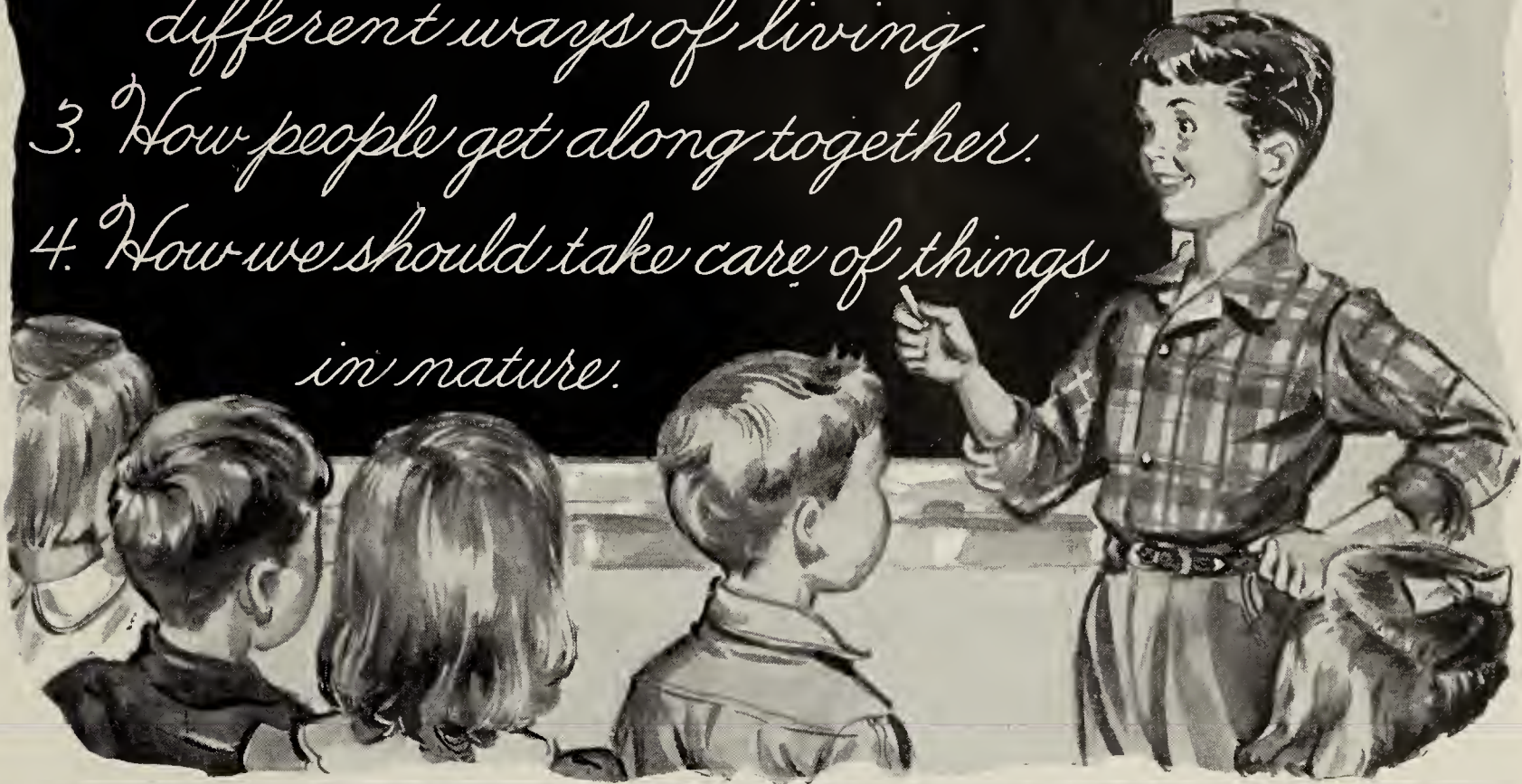
Lattimore, Eleanor F., *Christopher and His Turtle*. Christopher wanders through much of New Orleans.

Meeks, Esther K., *Fireman Casey and Fireboat 999*. An interesting story of a fireboat.

Tousey, Sanford, *Steamboat Billy*. A story of adventure on river boats.



1. Where people live on our earth.
2. Why different people have different ways of living.
3. How people get along together.
4. How we should take care of things in nature.



## A New Look at Communities Near and Far

Isn't exploring fun!

Boys and girls everywhere enjoy visiting Joe Manygoats and Jane Ellen. They like to get acquainted with Pimwe, Chris, Sandra, and Fujio. We hope that you enjoyed these visits too.

We also hope that you learned many things on these visits. Most important of all—did you learn how to be a better citizen? Would you like to review your work by using some of the things you learned in interesting ways?

In one classroom the children and their teacher had an interesting time reviewing what they had learned during the school

year. You may wish to review in the same way they did.

First, this class decided on four topics for review. One of the children wrote the topics on the board. Here they are:

1. Where people live on our earth.
2. Why different people have different ways of living.
3. How people get along together.
4. How we should take care of things in nature.

Then they divided the class into four committees. Each committee was to report on one topic. Each child decided on which committee he wished to work.



## Where People Live on Our Earth

The children on this committee had a long talk about their own community and about the communities they had studied. They decided that people live on almost every part of the earth.

Communities are located in mountain country, in hilly land, and on plains. Some communities are found near oceans or lakes or rivers, while others are in desert lands. Some have much rainfall, and some are very dry.

The land and the climate help to decide what kinds of plants and animals may be found in a community.

When they had studied their topic, they made a report to the class. Here are the things they did:

1. They pasted some big sheets of paper together, and the teacher helped them make a large map of the world. They put a big dot on the map to show where they lived. Then with dots they showed the locations of other communities they knew about or had read about.

2. They drew pictures showing things in their community and the other communities and pasted them on the map.

3. Each child told about one of the communities—about its people, its land, its climate, and its plants and animals.







### Why Different People Have Different Ways of Living

The children on this committee decided that people in different communities often live differently.

People in some communities do things in a certain way because they learned that way from their parents or grandparents. Boys and girls sing certain songs or play certain games in one community. In another community the children may have learned different songs and games.

Nature also helps us decide what kind of food and clothing and homes we will have in different communities. For example, because of climate the clothing worn in the hot rain forest is quite different from that worn in Norway.

In some communities machines have changed the ways of living. Ali rides on a camel, but Pierre can go places in his father's car. The story teller comes to

the hogan of Joe Manygoats, but Chris and his family have a television set.

The children on this committee made an interesting report:

1. Some of them pretended to be real-estate salesmen. They tried to persuade the class to buy a house in a certain community. They told all about the community—the land, the climate, the people and how they lived. Each child was a salesman for a different community.

2. They built some scenes in boxes. Each scene showed a home in a different community. The scenes often included people, animals, and some of the land around the home.

3. They made a set of large cards and wrote a word on each card. Here are some of the words—*wool, cotton sheets, bananas, hogan, clams*. There were many others. They held up the cards one at a time and asked the class to name the community it made them think of.





### How People Get Along Together

The children of this committee first talked about the ways in which people live together. They decided that people should first learn to work and play together in their homes. Each member of the family has to do his share. A good example is the way everybody in the North Carolina family helped do the work when Mother got sick before Christmas. Another example is the way the whole family went on a camping trip together in the story of the Green Guards.

Then they talked about ways in which families work together in a community. The families in the Joe Manygoats' story helped each other plant and harvest corn. The people in New Orleans planned to help each other if the hurricane came.

Then one of the children wanted to know how we get along with people of other communities. The children decided that we must know as much as possible about the other people. We must know how they live. We must know

about their homes, food, clothes, and transportation. We must also try to understand how other people think and feel about different things. This will help us to get along with them.

Finally they were ready to give a report. This is what they did:

1. They made up a short play which showed how people work and play together. They got their ideas from one of the stories. This play was presented to the class.

2. They gathered and mounted pictures which showed how people work together in a community. One of these pictures showed men piling up sandbags to keep a river from flooding a town. The pictures were used in the report and then put on the bulletin board.

3. They made a book of pictures of their own community. The members of the committee also wrote things which explained the pictures. This book was sent to a school in Japan. They are now waiting to get a book in return from that school.



## How We Take Care of Things in Nature

The children on this committee first talked about the things in nature which people use. We use soil to raise our food. We must also have water for crops. Some of the other things that people use are wood from forests, fish from the sea, oil from wells, and coal from mines.

Do we know how to take care of our soil, our water, our forests, and the other things in nature? Billy and Susan helped to save a forest. In Nebraska the land was plowed in a certain way to keep the soil from blowing away. Some of the children had many ideas of their own about conservation.

For a report they did the following:

1. Each member of the committee talked about the best ways to take care of one of the things in nature.

2. They made a set of rules about conservation and read them to the class.

3. They made a poster about each one of the rules.

### Your Plans

You may want to do some of the things these children did. You may think of other ways of reviewing the same topics. Whatever you decide to do, see what good work you can do and how much you can learn.

After you have given your report, we hope that you will keep right on exploring near and far.





# Index

The following index will help you find the topics, pictures, maps, and diagrams you need in your work. It is arranged in alphabetical order and has guide words like those in your dictionary. It will show you what you can find in the book about a person, a place, or a thing. It will also help you when you are planning a report on a large topic such as **communication** or **rainfall**.

## Key to Abbreviations

Italic letters before page references tell you what you will find: *d.* stands for *diagram*; *m.* stands for *map*; *p.* stands for *picture*.

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